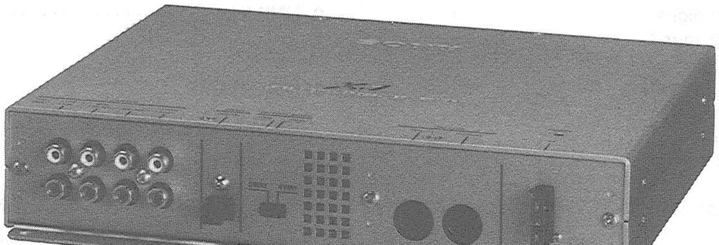
XES-X1

SERVICE MANUAL

AEP Model
E Model



SPECIFICATIONS

Power requirements	12 V DC car battery (negative ground)
Current drain	1.5 A
Gain	0 dB
Maximum output level	+14 dB
Harmonic distortion	0.005%
Signal-to-noise ratio	100 dB
Crosstalk	90 dB
Crossover slope	70 dB/oct

Crossover frequency (1/6 oct step.)

3way system	
LOW: HI-LIM	78, 88, 99, 111, 125, 140, 157, 176, 198 Hz
MID: HI-LIM HIGH:LO-LIM	(2.00, 2.24, 2.51, 2.82, 3.17, 3.56, 4.00 4.48, 5.03, 5.65, 6.34, 7.12, 8.00 kHz)
4way system	
LOW: HI-LIM	78, 88, 99, 111, 125, 140, 157, 176, 198 Hz
LOW-MID: HI-LIM	629, 707, 793, 890 Hz 1.00, 1.12, 1.25, 1.41, 1.58, 1.78 kHz
HIGH-MID: HI-LIM HIGH:LO-LIM	(3.17, 3.56, 4.00, 4.48, 5.03, 5.65, 6.34 7.12, 8.00 kHz)

Weight	Approx. 1.75 kg (3 lb. 14 oz.)
Accessories supplied	Optical digital cable (1) UNILINK cable (1) Fuse (1) Mounting screw (1 set)
Frequency response	5~20,000 Hz ($^{+0}_{-1}$ dB)
Sampling frequency	32 kHz, 44.1 kHz, 48 kHz
Dimensions	250 × 50 × 215 mm (w × h × d) (9⅞ × 2 × 8½ inches)

Design and specifications subject to change without notice.

DIGITAL CROSSOVER NETWORK

SONY®

MICROFILM

Features

The XES-X1 is a Digital Crossover Network used in multi-amplifier systems. This unit divides digital sound signals by each frequency and outputs analog signals. Dividing digital sound signals maintains high quality sound.

- You can control the sound effects by remote commander supplied with XES-P1.
- FIR filter* makes straight phase, and decreases phase shift of each frequency band.
- You can adjust time-alignment** for each speaker unit.
- You can select 3 way or 4 way speaker system.

* FIR (Finite Impulse Responce)
Usual filter begins to roll phase, but FIR filter makes phase straight in principle.

** Time-alignment
Time-alignment decreases band signal in each range 0-10 m sec STEP 0.1 m sec. Calculating into distance, it is 0-3.4 m STEP 3.4 cm. And it keeps away speaker from a listener.
Thus this function enables the listener to hear the sound from all speakers as if at the same distance.

Notes on chip component replacement

- Never reuse a disconnected chip component.
- Notice that the minus side of a tantalum capacitor may be damaged by heat.

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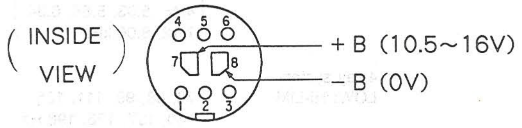
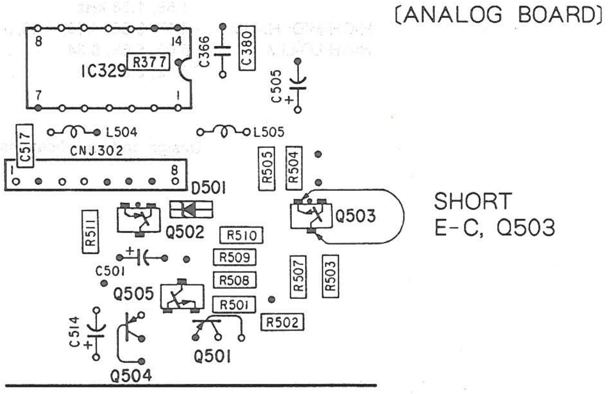
Operating the unit separately

1. Conect the power supply to the UNILINK terminal (XES-P1 or DISPLAY).
2. Short E-C of Q503 on the [ANALOG BOARD].

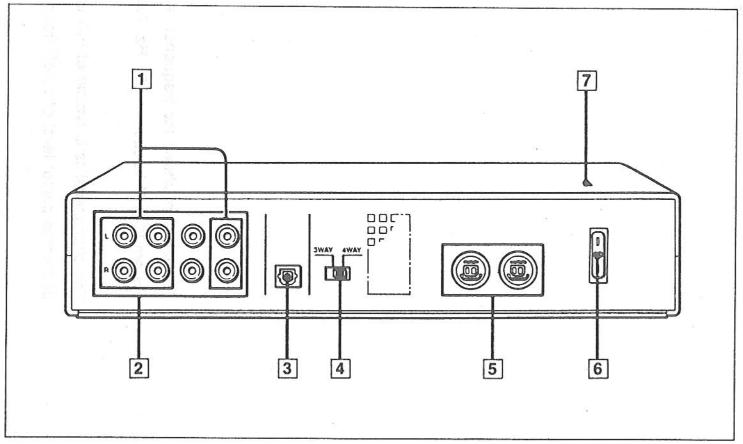
PLUG. CONNECTOR,(UNILINK)


INSIDE VIEW
4
5
6
7
8
1
2
3
+B (10.5~16V)
–B (0V)

[ANALOG BOARD]


8
14
IC329
R377
7
1
C366
C380
C505
C517
L504
L505
CNJ302
1
8
D501
R505
R504
R511
Q502
R510
Q503
C501
R509
Q505
R508
R501
R507
R503
R502
C514
Q504
Q501
SHORT
E-C, Q503

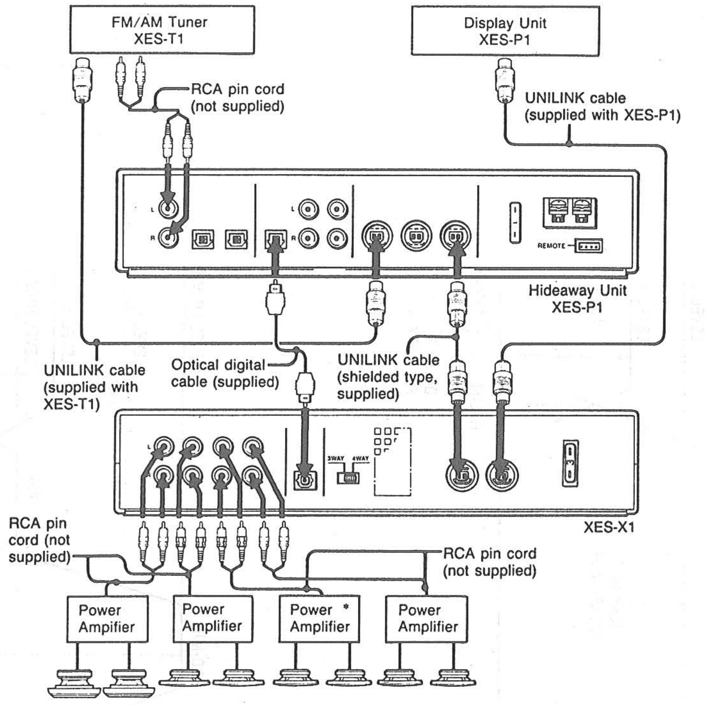
Parts Identification


1
7
3WAY 4WAY
2
3
4
5
6

1. **3-way (LOW/MID/HIGH) ANALOG OUTPUT jacks**
2. **4-way (LOW/LO-MID/HI-MID/HIGH) ANALOG OUTPUT jacks**
3. **DIGITAL INPUT jack (optical)**
4. **OUTPUT MODE SELECTOR**
   Select 3WAY or 4WAY according to the connected power amplifier and speaker system.
5. **UNILINK (XES-P1/DISPLAY) jacks**
6. **Fuse (3A)**
7. **Power indicator**
   Lights up while operating.

Connections

- Before making connections, disconnect the ground terminal of the car battery to avoid short circuit.
- Connect the UNILINK cable only after all other leads have been connected.
- Connect the power input lead of this system (XES-P1 with XES-X1) to the battery in parallel with the power input lead of the power amplifiers.
- The sound doesn't come out from the REAR OUTPUT of the XES-P1 when connected to XES-X1 and the SUR function is turned off.

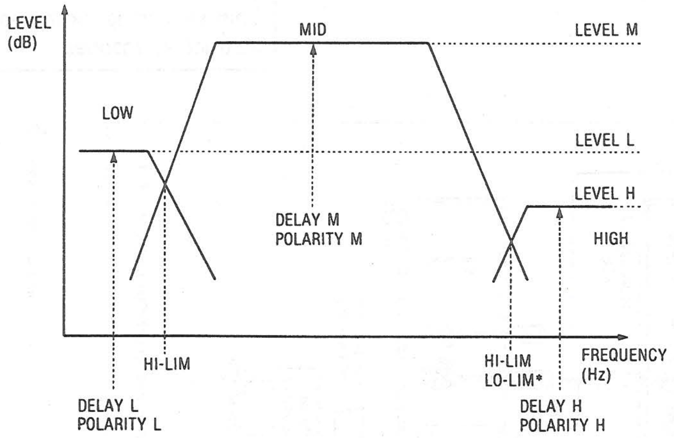

FM/AM Tuner
XES-T1
Display Unit
XES-P1
RCA pin cord
(not supplied)
UNILINK cable
(supplied with XES-P1)
REMOTE
Hideaway Unit
XES-P1
UNILINK cable
(supplied with
XES-T1)
Optical digital
cable (supplied)
UNILINK cable
(shielded type,
supplied)
3WAY 4WAY
XES-X1
RCA pin
cord (not
supplied)
RCA pin cord
(not supplied)
Power
Ampifier
Power
Amplifier
Power *
Amplifier
Power
Amplifier

* **When you select a 3-way system**
Remove a amplifier-speaker system from this 4-way system, and set OUTPUT MODE SELECTOR to 3WAY.

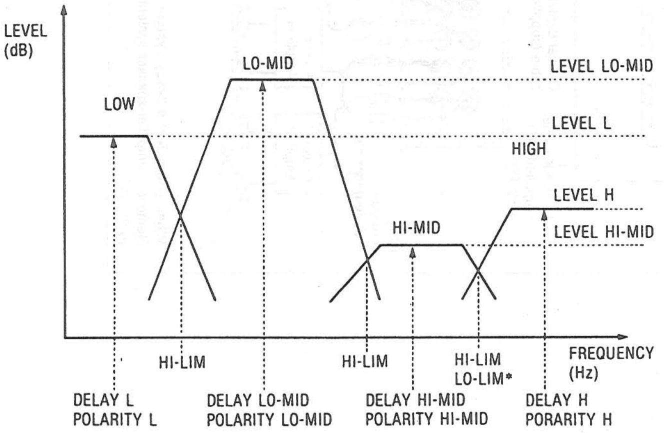
SECTION 1
GENERAL

This section is extracted from instruction manual.

3WAY

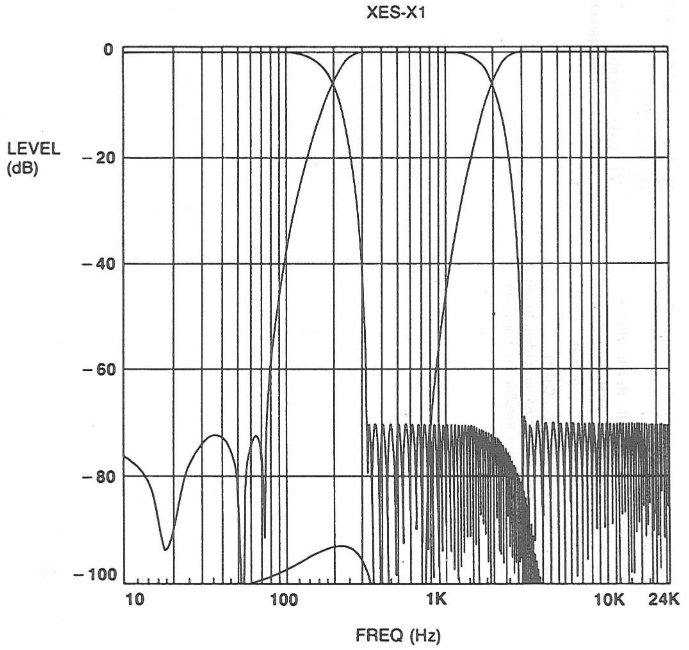

LEVEL (dB)
MID
LEVEL M
LOW
LEVEL L
LEVEL H
DELAY M
POLARITY M
HIGH
HI-LIM
HI-LIM
LO-LIM*
FREQUENCY (Hz)
DELAY L
POLARITY L
DELAY H
POLARITY H

4WAY


LEVEL (dB)
LO-MID
LEVEL LO-MID
LOW
LEVEL L
HIGH
LEVEL H
HI-MID
LEVEL HI-MID
HI-LIM
HI-LIM
HI-LIM
LO-LIM*
FREQUENCY (Hz)
DELAY L
POLARITY L
DELAY LO-MID
POLARITY LO-MID
DELAY HI-MID
POLARITY HI-MID
DELAY H
PORARITY H

* When you adjust HIGH, "Cross Lo-Lim" appears on the display of XES-P1

Crossover Point Characteristics



This diagram shows the frequency response of 3way system (Cutoff frequency: 198 Hz, 2.00 kHz).

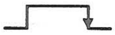
The characteristics is typical of FIR filter, and FIR filter decreases output level of cutoff frquency sharply.

SECTION 2
UNILINK

Eight types of signals are transmitted with the UNILINK cable. Communication involves two lines: DATA and CLOCK. DATA communication is bidirectional while CLOCK communication adopts the sync output from the MASTER microcomputer. These signals are connected to the MASTER microcomputer and SLAVE microcomputer ports.

① **Reserved.**

② **RESET**

Under normal conditions, LOW. When the system is RESET, .
MASTER outputs this signal.
When resetting SLAVE only, the RESET line will not change.

③ **SIRCS**

Modified electrical signal without the carrier of the infrared remote commander SIRCS signal. Although multiple remote sensors may exist, MASTER decodes the signal, determines the input contents of SIRCS and transmits the contents to each SLAVE.

④ **CLOCK**

Serial data CLOCK line.
MASTER outputs this signal.

⑤ **DATA**

Serial data I/O line. When BUS ON is HIGH, MASTER outputs a 16 msec cycle pulse to inform the data I/O timing to SLAVE. When BUS ON is LOW and SLAVE needs to communicate, SLAVE informs MASTER by setting DATA to LOW. In turn, MASTER sets BUS ON to HIGH and starts communication.

⑥ **BUS ON**

HIGH (5 V) when communication is enabled on BUS.
HIGH when the system is in the WAKE UP mode. Also, HIGH during SLEEP mode when communication is required.
MASTER outputs BUS ON. SLAVE exits from the HALT or STOP mode with the onset of BUS ON.
During INITIAL LINK, SLAVE cuts off (LINK OFF) the BUS ON line and disables the communication of the connected SLAVE.

⑦ **POWER (BACK UP)**

Power (12 V) supplied from the battery.
Continuous 2 A.

⑧ **GND**

Power supply and GND for the communication system.

SLAVE Microcomputer

Port	Description
BUS ON	SLAVE must be set to the communication enable condition when the BUS ON port drop to LOW is detected. Communication is enabled when LOW.
DATA IN	Serial DATA input and input for communication timing detection.
DATA OUT	Serial DATA output port.
REQ	Outputs HIGH when requesting communication to MASTER.
CLOCK IN	Serial communication clock input.
LINK OFF	Port to set the BUS ON line of the following connected SLAVE OFF. Turns ON when LOW is output. Turns OFF at HIGH output or HIGH impedance.
BU CHECK	Power supply voltage detection port. SLAVE is determined as cut off from BUS when power supply voltage drop is detected. The MEMBER ADDRESS will be erased.

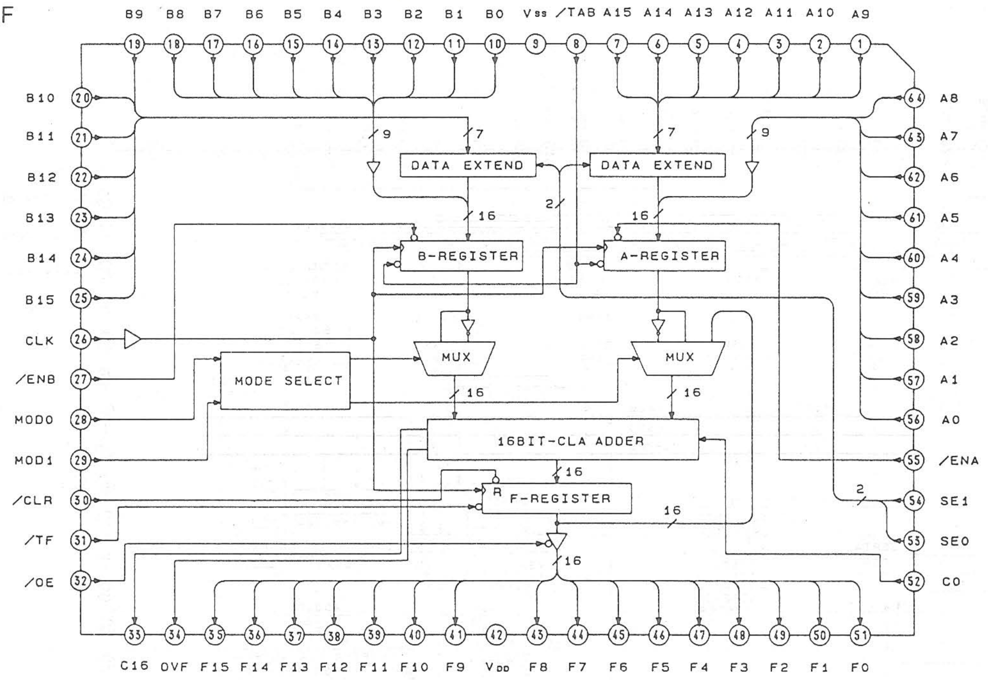
SECTION 3
DIAGRAMS

3-1. IC DESCRIPTION

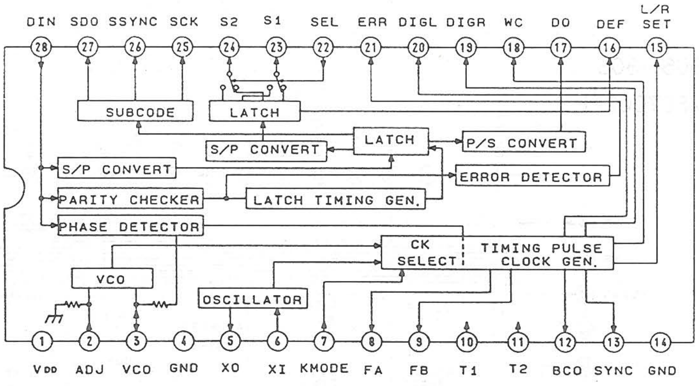
IC401 MAIN MICRO-COMPUTER (M37450M8-373FP)

Pin No.	Pin Name	I/O	Description
1			Not used
2	SCL	O	Clock for E^2 PROM
3	$\overline{\text{RS}}$	O	Reset for DSP IC
4~11	STRB1~8	O	Strobe for DSP IC
12	ON/OFF	O	Power ON/$\overline{\text{OFF}}$
13	$\overline{\text{MUTE (A)}}$	O	Analog mute
14	$\overline{\text{MUTE (D)}}$	O	Digital mute
15	ROM OE	O	ROM output enable
16	CLOAD	O	Cload for DSP IC
17	B. U CHECK	O	BACK UP CHECK
18	BUS ON	I	BUS ON (For unilink)
19	A16	O	Address 16
20~24			Not used
25	CNVSS		GND
26	$\overline{\text{RESET}}$	O	$\overline{\text{RESET}}$
27			Not used
28	XOUT	O	External clock output
29	XIN	I	External clock input
30, 31			Not used
32	VSS		GND
33~49	A15~A0		Address 15~0
50~57	PLOAD1~8		Pload for DSP IC
58, 59			Not used
60	S1	I	fs information input
61	S2	I	fs information input
62			Not used
63	$\overline{\text{3}}$/4 WAY	I	3 way: Low, 4 way: High
64			Not used
65	FS MUTE	I	Error information
66	VOL (L)	O	Volume L-CH output
67	VOL (R)	O	Volume R-CH output
68	DAV-REF		Vcc
69	ADV-REF		Vcc
70	AVSS		GND
71	AVCC		Vcc
72	VCC		
73	GND		GND
74	LINK OFF	O	Link OFF (For unilink)
75	CLOCK IN	I	Clock IN (For unilink)

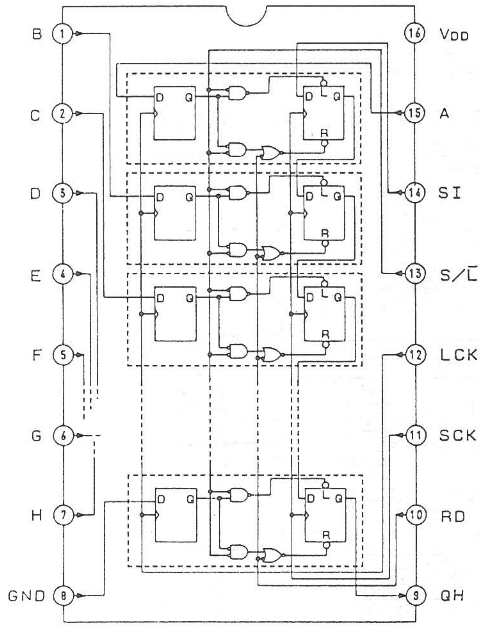
· IC321~322
SM5833AF


B9 B8 B7 B6 B5 B4 B3 B2 B1 B0 Vss /TAB A15 A14 A13 A12 A11 A10 A9
B10
B11
B12
B13
B14
B15
CLK
/ENB
MOD0
MOD1
/CLR
/TF
/OE
A8
A7
A6
A5
A4
A3
A2
A1
A0
/ENA
SE1
SE0
CO
C16 OVF F15 F14 F13 F12 F11 F10 F9 VDD F8 F7 F6 F5 F4 F3 F2 F1 F0
DATA EXTEND
DATA EXTEND
B-REGISTER
A-REGISTER
MUX
MUX
MODE SELECT
16BIT-CLA ADDER
F-REGISTER
R
9
7
16
2
16

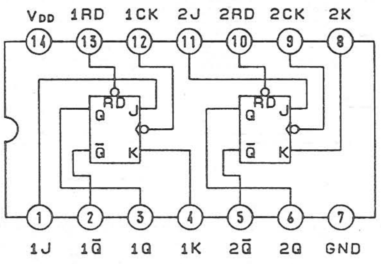
· IC312
YM3623B


DIN SDO SSYNC SCK S2 S1 SEL ERR DIGL DIGR WC DO DEF L/R SET
SUBCODE
LATCH
S/P CONVERT
LATCH
P/S CONVERT
S/P CONVERT
ERROR DETECTOR
PARITY CHECKER
LATCH TIMING GEN.
PHASE DETECTOR
CK SELECT
TIMING PULSE CLOCK GEN.
VCO
OSCILLATOR
VDD ADJ VCO GND XO XI KMODE FA FB T1 T2 BCO SYNC GND

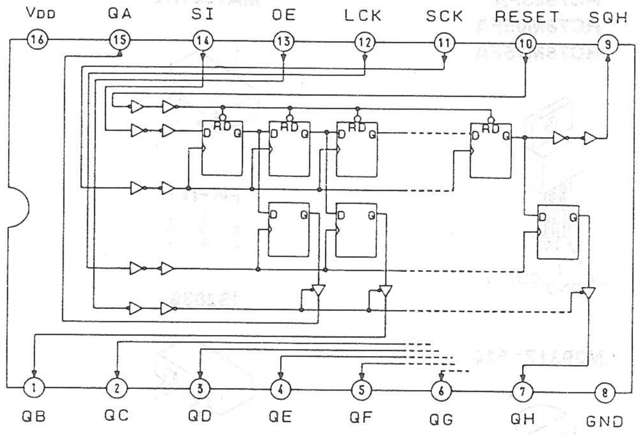
· IC317,318
TC74HC597AF


B
C
D
E
F
G
H
GND
VDD
A
SI
S/L̄
LCK
SCK
RD
QH
D Q
D Q
R

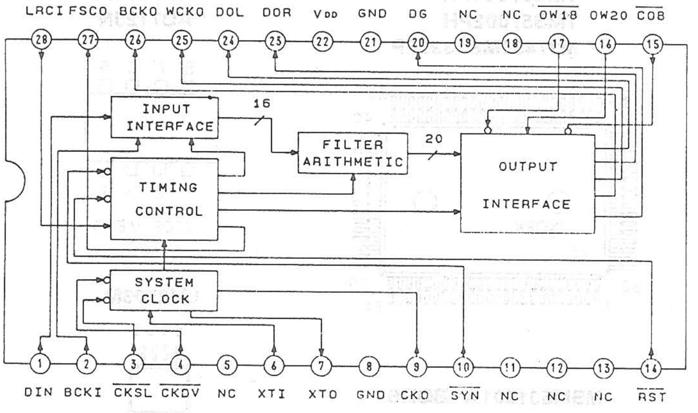
· IC311
SN74HC107NS


VDD 1RD 1CK 2J 2RD 2CK 2K
RD
Q J
Q̄ K
1J 1Q̄ 1Q 1K 2Q̄ 2Q GND

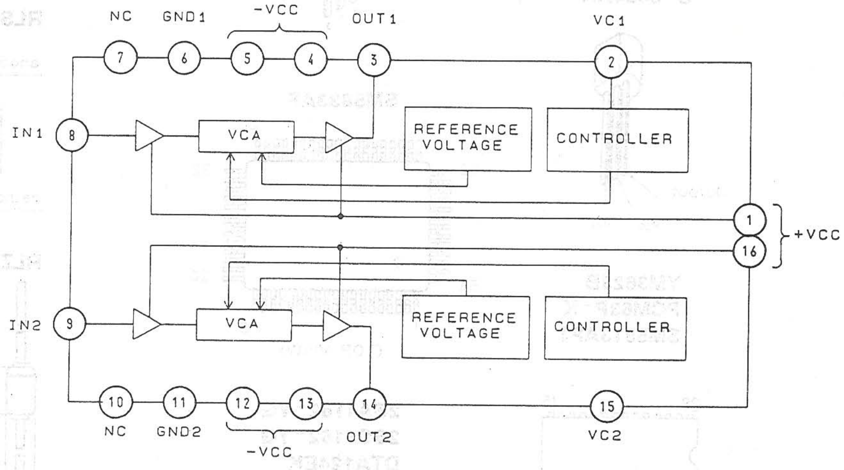
- IC319,320
  IC323~326
  TC74HC595AF


VDD
QA
SI
OE
LCK
SCK
RESET
SQH
16
15
14
13
12
11
10
9
1
2
3
4
5
6
7
8
QB
QC
QD
QE
QF
QG
QH
GND

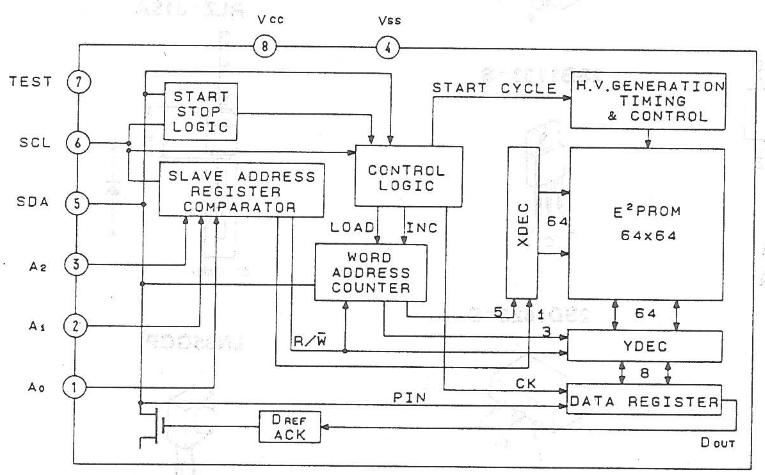
- IC330~333
  SM5813APT


LRCI
FSCO
BCKO
WCKO
DOL
DOR
VDD
GND
DG
NC
NC
OW18
OW20
CO8
28
27
26
25
24
23
22
21
20
19
18
17
16
15
INPUT INTERFACE
16
FILTER ARITHMETIC
20
OUTPUT INTERFACE
TIMING CONTROL
SYSTEM CLOCK
1
2
3
4
5
6
7
8
9
10
11
12
13
14
DIN
BCKI
CKSL
CKDV
NC
XTI
XTO
GND
CKO
SYN
NC
NC
NC
RST

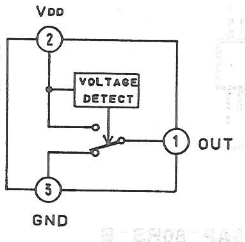
- IC334~337
  M5283P


NC
GND1
-VCC
OUT1
VC1
7
6
5
4
3
2
IN1
8
VCA
REFERENCE VOLTAGE
CONTROLLER
1
16
+VCC
IN2
9
VCA
REFERENCE VOLTAGE
CONTROLLER
10
11
12
13
14
15
NC
GND2
-VCC
OUT2
VC2

- IC403
  X24C04PI

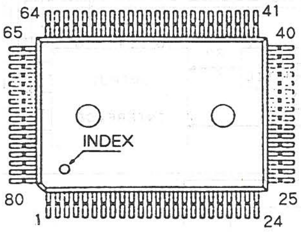

Vcc
Vss
8
4
TEST
7
SCL
6
SDA
5
A2
3
A1
2
A0
1
START STOP LOGIC
START CYCLE
H.V.GENERATION TIMING & CONTROL
SLAVE ADDRESS REGISTER COMPARATOR
CONTROL LOGIC
LOAD
INC
WORD ADDRESS COUNTER
XDEC
64
E²PROM 64x64
5
1
3
64
R/W
YDEC
8
CK
PIN
DATA REGISTER
DREF ACK
DOUT

- IC404
  S-8054HN

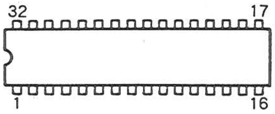

VDD
2
VOLTAGE DETECT
1
OUT
3
GND

3-3. SEMICONDUCTOR LEAD LAYOUTS

TMC57001PH
TMS57002PH
M37450M8-393FP

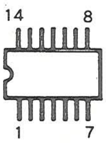

64
41
65
40
INDEX
80
25
1
24

MSM531001A-BORS



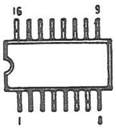
(TOP VIEW)

TC74HCU04AF
MC74HC00AF
SN74HC04NS
SN74HC04AN
SN74HC32N
SN74HC107NS



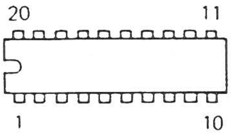
(TOP VIEW)

TC74HC595AF
TC74HC597AF



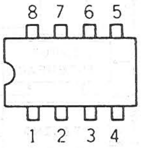
(TOP VIEW)

MSM514256AP-80RS-B



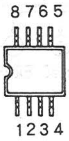
(TOP VIEW)

X24C04PI
AD712JN



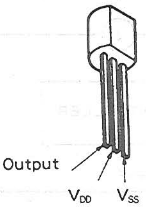
(TOP VIEW)

LM2903M

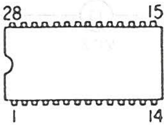


(TOP VIEW)

S-8054HN

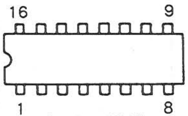

Output
V_{DD}
V_{SS}

YM3623B
PCM63P-K
SM5813APT



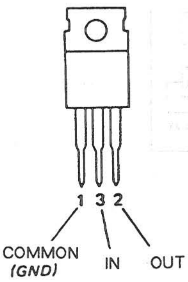
(TOP VIEW)

M5283P

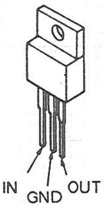


(TOP VIEW)

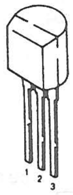
RC79M05FA
RC79M15FA


1 3 2
COMMON
(GND)
IN
OUT

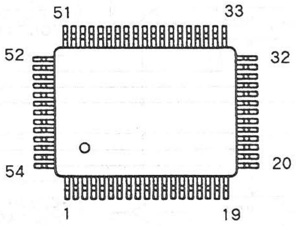
RC7805FA
RC78M05FA
RC78M15FA



LM2931Z-510

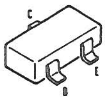


SM5833AF

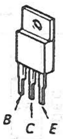

51
33
52
32
54
20
1
19

(TOP VIEW)

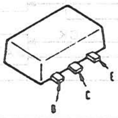
2SA1162-YG
2SC1162-YG
DTA124EK



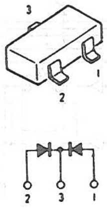
2SB1133-S



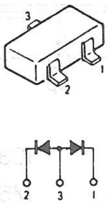
2SD1622-S



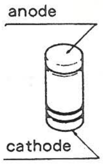
MA152WK



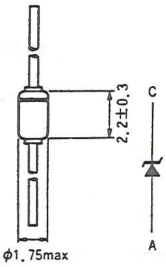
IS2836



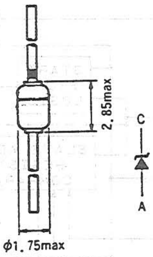
RLS-4148


anode
cathode

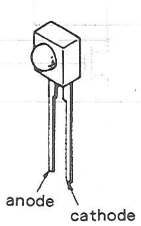
RLZ-J6.2B


2.2±0.3
C
A
φ1.75max

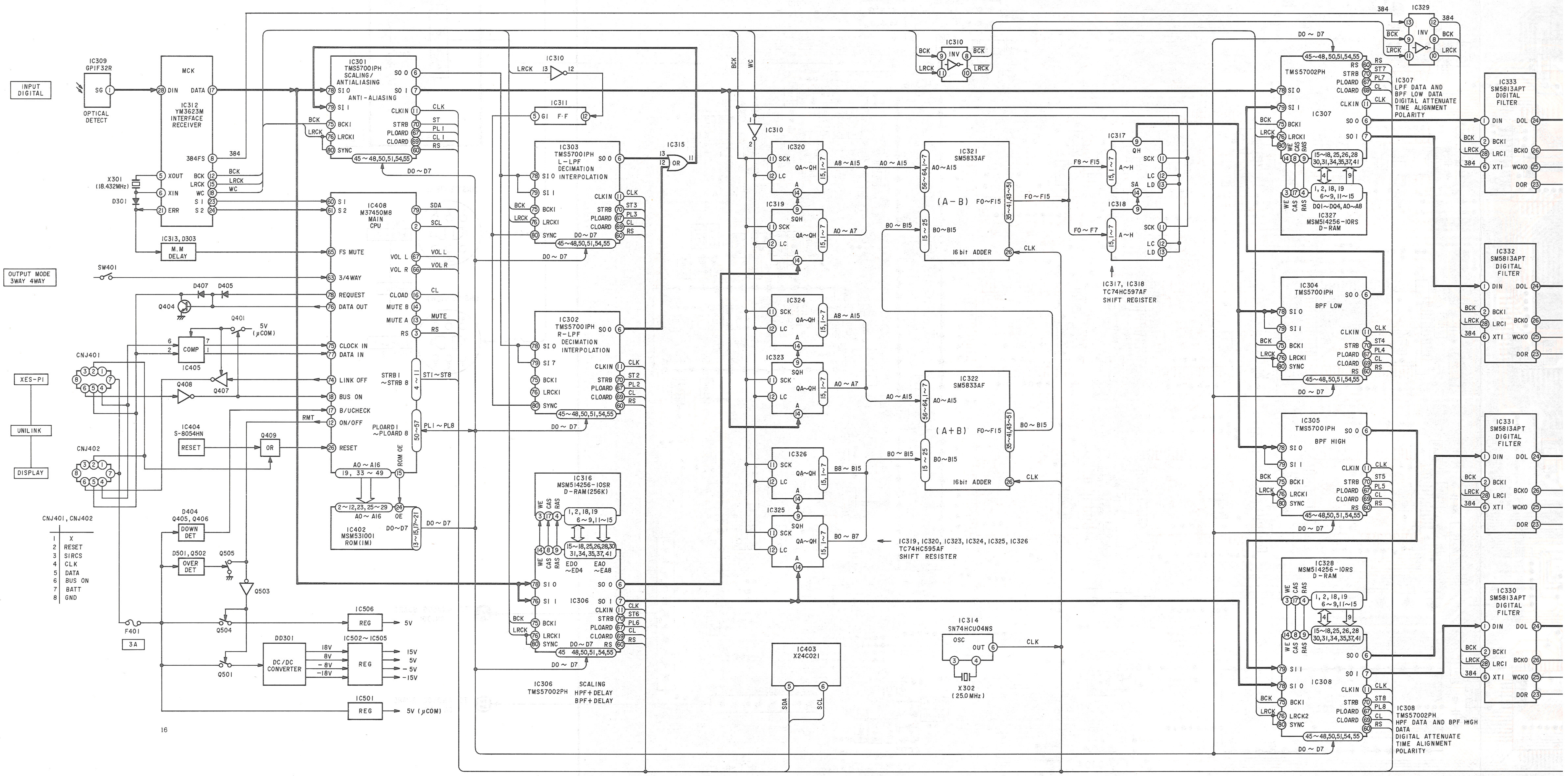
RLZ-J15A

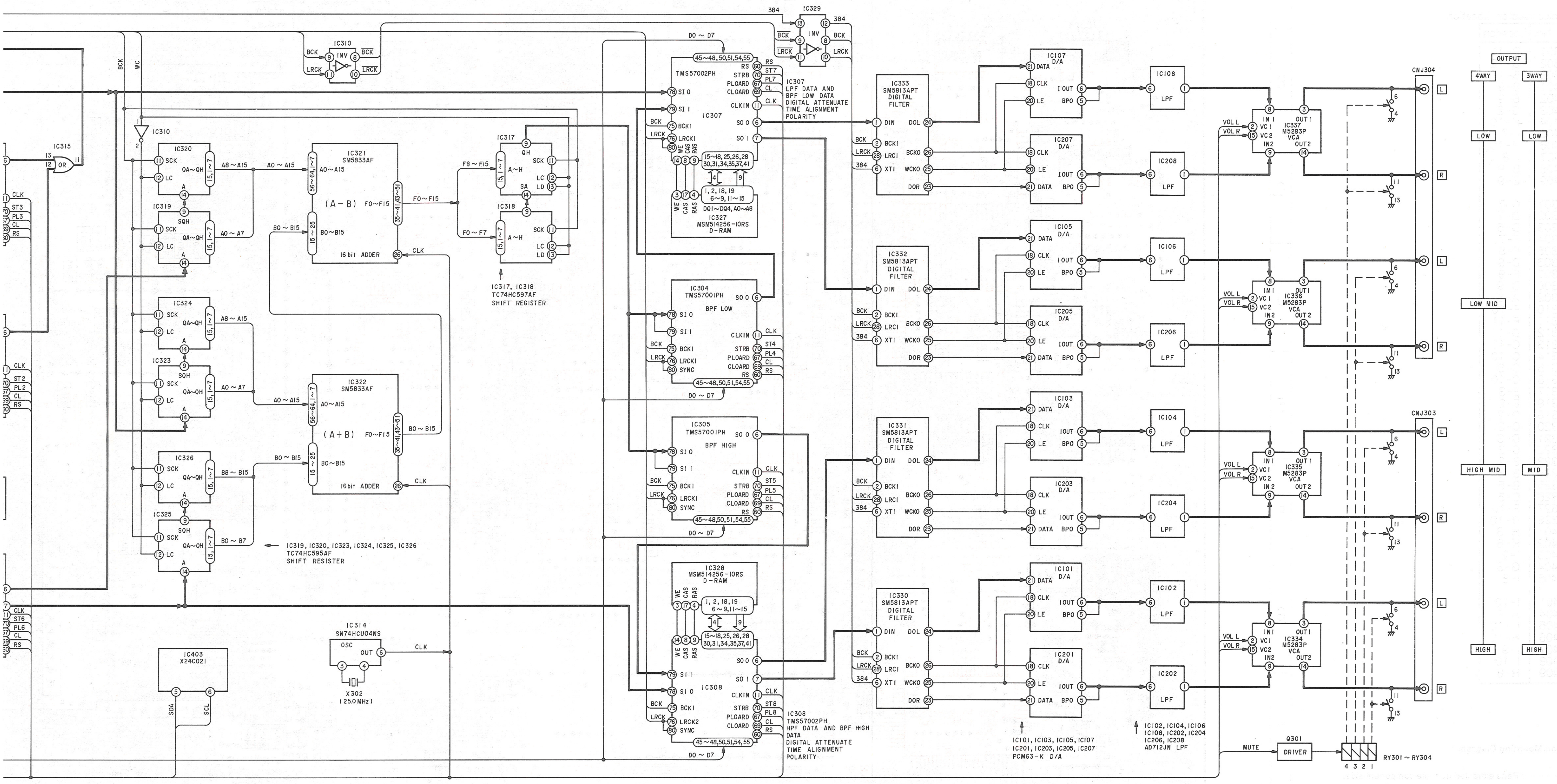

2.85max
C
A
φ1.75max

LN35GCP


anode
cathode

3-4. BLOCK DIAGRAM


INPUT DIGITAL
IC309 GP1F32R
OPTICAL DETECT
IC312 YM3623M INTERFACE RECEIVER
MCK
DIN
DATA
384FS
XOUT
XIN
ERR
BCK
LRCK
WC
X301 (18.432MHz)
D301
IC313, D303 M.M DELAY
OUTPUT MODE 3WAY 4WAY
SW401
D407
D405
Q404
Q401
5V (μCOM)
COMP
IC405
CNJ401
XES-P1
Q408
Q407
UNILINK
IC404 S-8054HN
RESET
Q409
OR
RMT
CNJ402
DISPLAY
CNJ401, CNJ402
1 X
2 RESET
3 SIRCS
4 CLK
5 DATA
6 BUS ON
7 BATT
8 GND
D404 Q405, Q406 DOWN DET
D501, Q502 OVER DET
Q505
Q503
Q504
F401 3A
Q501
DD301 DC/DC CONVERTER
IC506 REG 5V
IC502~IC505 REG
18V 8V -8V -18V
15V 5V -5V -15V
IC501 REG 5V (μCOM)
IC301 TMS57001PH SCALING/ANTIALIASING ANTI-ALIASING
IC408 M37450M8 MAIN CPU
FS MUTE
3/4WAY
REQUEST
DATA OUT
CLOCK IN
DATA IN
LINK OFF
BUS ON
B/UCHECK
ON/OFF
SDA
SCL
VOL L
VOL R
CLOAD
MUTE B
MUTE A
RS
STRB1 ~STRB 8
ST1~ST8
PLOARD1 ~PLOARD 8
PL1~PL8
A0~A16
ROM OE
IC402 MSM531001 ROM(1M)
IC310 LRCK
IC311 F·F
IC303 TMS57001PH L-LPF DECIMATION INTERPOLATION
IC302 TMS57001PH R-LPF DECIMATION INTERPOLATION
IC315 OR
IC316 MSM514256-10SR D-RAM(256K)
IC306 TMS57002PH SCALING HPF+DELAY BPF+DELAY
IC403 X24C021
IC310
IC320
IC319
IC324
IC323
IC326
IC325
SCK LC QA~QH SQH
IC321 SM5833AF (A-B) 16bit ADDER
IC322 SM5833AF (A+B) 16bit ADDER
A0~A15
B0~B15
F0~F15
IC317
IC318
IC317, IC318 TC74HC597AF SHIFT REGISTER
IC319, IC320, IC323, IC324, IC325, IC326 TC74HC595AF SHIFT RESISTER
IC314 SN74HCU04NS OSC
X302 (25.0MHz)
CLK
IC310 INV
IC329 INV
384
TMS57002PH
IC307 LPF DATA AND BPF LOW DATA DIGITAL ATTENUATE TIME ALIGNMENT POLARITY
IC327 MSM514256-10RS D-RAM
IC304 TMS57001PH BPF LOW
IC305 TMS57001PH BPF HIGH
IC328 MSM514256-10RS D-RAM
IC308 TMS57002PH HPF DATA AND BPF HIGH DATA DIGITAL ATTENUATE TIME ALIGNMENT POLARITY
IC333 SM5813APT DIGITAL FILTER
IC332 SM5813APT DIGITAL FILTER
IC331 SM5813APT DIGITAL FILTER
IC330 SM5813APT DIGITAL FILTER
DIN DOL BCKI LRCI XTI BCKO WCKO DOR
D0~D7
45~48,50,51,54,55
16


IC310
INV
BCK
LRCK
IC315
OR
IC320
IC319
IC324
IC323
IC326
IC325
SCK
LC
QA~QH
SQH
A8 ~ A15
A0 ~ A15
A0 ~ A7
B8 ~ B15
B0 ~ B15
B0 ~ B7
IC321
SM5833AF
(A－B)
F0~F15
16 bit ADDER
IC322
SM5833AF
(A+B)
IC317
IC318
QH
SA
A~H
F8 ~ F15
F0 ~ F7
IC317, IC318
TC74HC597AF
SHIFT REGISTER
IC319, IC320, IC323, IC324, IC325, IC326
TC74HC595AF
SHIFT RESISTER
IC329
384
D0 ~ D7
IC307
TMS57002PH
SI 0
SI 1
SO 0
SO 1
BCKI
LRCKI
STRB
PLOARD
CLOARD
CLKIN
IC307
LPF DATA AND
BPF LOW DATA
DIGITAL ATTENUATE
TIME ALIGNMENT
POLARITY
IC327
MSM514256-10RS
D-RAM
DQ1~DQ4, A0~A8
IC304
TMS5700IPH
BPF LOW
IC305
TMS5700IPH
BPF HIGH
SYNC
IC328
MSM514256-10RS
D-RAM
IC308
TMS57002PH
HPF DATA AND BPF HIGH
DATA
DIGITAL ATTENUATE
TIME ALIGNMENT
POLARITY
IC314
SN74HCU04NS
OSC
OUT
CLK
X302
(25.0 MHz)
IC403
X24C021
SDA
SCL
IC333
SM5813APT
DIGITAL
FILTER
IC332
SM5813APT
DIGITAL
FILTER
IC331
SM5813APT
DIGITAL
FILTER
IC330
SM5813APT
DIGITAL
FILTER
DIN
DOL
DOR
BCKO
WCKO
XTI
LRCI
IC107 D/A
IC207 D/A
IC105 D/A
IC205 D/A
IC103 D/A
IC203 D/A
IC101 D/A
IC201 D/A
DATA
LE
IOUT
BPO
IC108
IC208
IC106
IC206
IC104
IC204
IC102
IC202
LPF
IC101, IC103, IC105, IC107
IC201, IC203, IC205, IC207
PCM63-K D/A
IC102, IC104, IC106
IC108, IC202, IC204
IC206, IC208
AD712JN LPF
IC337
IC336
IC335
IC334
M5283P
VCA
IN 1
IN 2
OUT 1
OUT 2
VC 1
VC 2
VOL L
VOL R
MUTE
Q301
DRIVER
RY301 ~ RY304
CNJ304
CNJ303
L
R
OUTPUT
4WAY
3WAY
LOW
LOW MID
HIGH MID
MID
HIGH

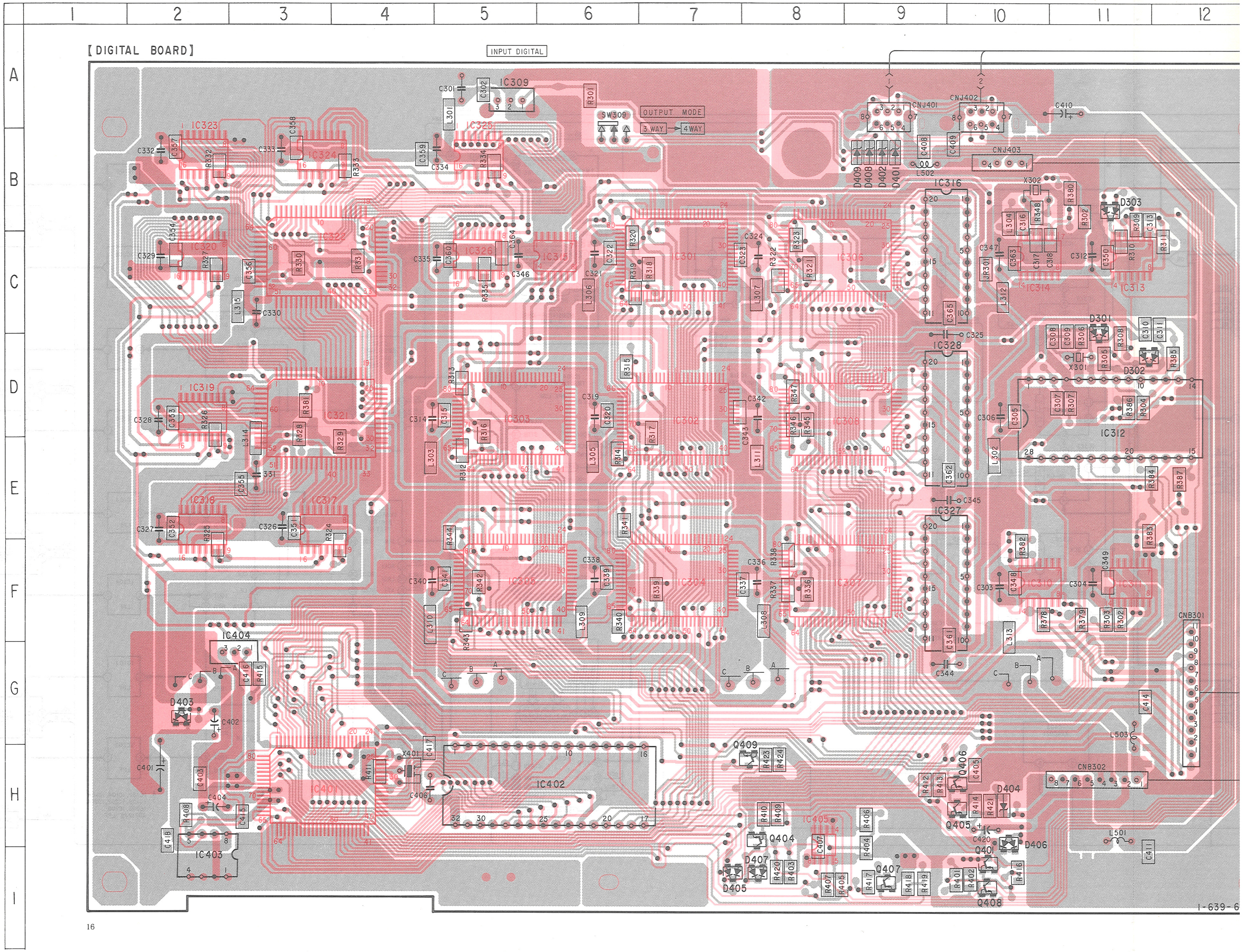
3-5. PRINTED WIRING BOARD - DIGITAL SECTION - •See page 12 for Semiconductor lead layouts.

· Semiconductor Location

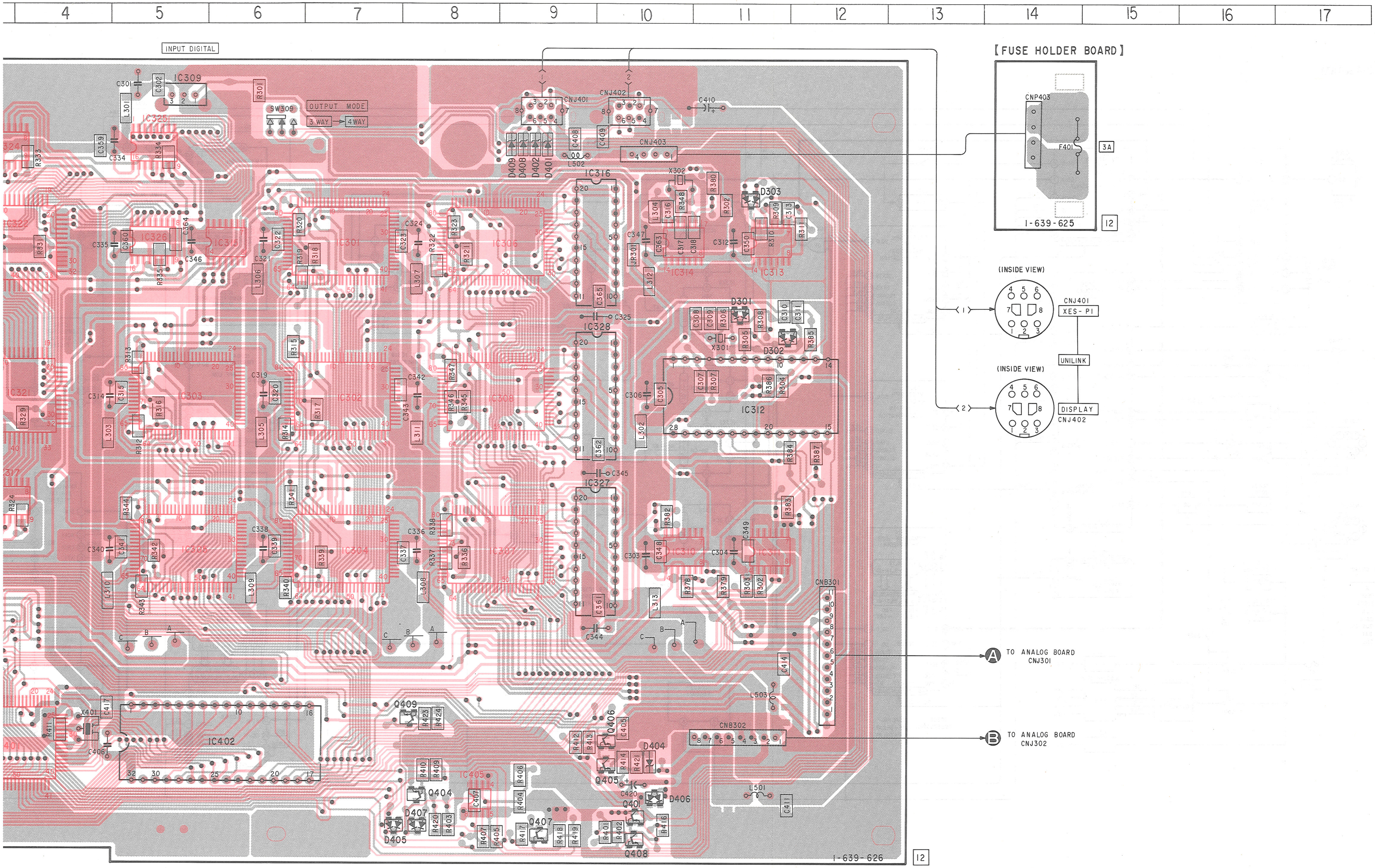
Ref. No.	Location
D301	D-11
D302	D-12
D303	B-11
D401	B-9
D402	B-9
D403	G-2
D404	H-10
D405	I-7
D406	H-10
D407	I-8
D408	B-9
D409	B-9
IC301	C-7
IC302	D-7
IC303	D-5
IC304	F-7
IC305	F-5
IC306	C-9
IC307	F-9
IC308	D-9
IC309	A-5
IC310	F-10
IC311	F-11
IC312	D-11
IC313	C-11
IC314	C-10
IC315	C-6
IC316	C-10
IC317	E-3
IC318	E-2
IC319	D-2
IC320	C-2
IC321	D-3
IC322	C-3
IC323	B-2
IC324	B-3
IC325	B-5
IC326	C-5
IC327	F-10
IC328	D-10
IC401	H-3
IC402	H-6
IC403	I-2
IC404	G-3
IC405	I-8
Q401	I-10
Q404	H-8
Q405	H-10
Q406	H-10
Q407	I-9
Q408	I-10
Q409	H-8

Note on Mounting Diagram :

- ○—— : Parts extracted from the component side.
- ● : Through hole.
- ▨ : Pattern on the side which is seen.
- ▨ : Pattern of the rear side.
- ☐ : Chip components extracted from the rear side.

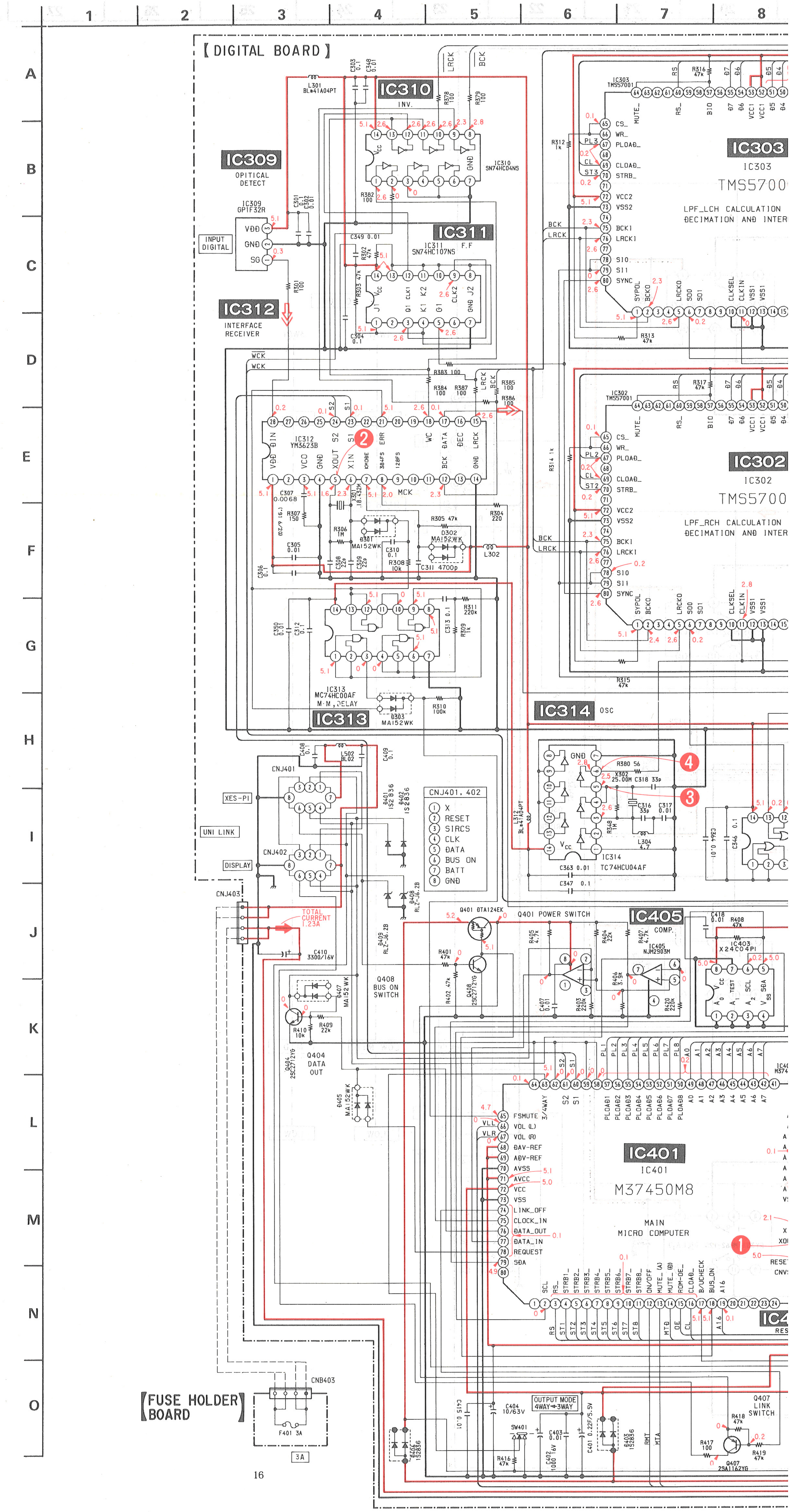

1
2
3
4
5
6
7
8
9
10
11
12
A
B
C
D
E
F
G
H
I
[DIGITAL BOARD]
INPUT DIGITAL
OUTPUT MODE
3 WAY
4 WAY
SW309
IC309
IC323
IC324
IC325
IC320
IC322
IC326
IC315
IC301
IC306
IC316
IC314
IC313
IC319
IC321
IC303
IC302
IC308
IC328
IC312
IC318
IC317
IC305
IC304
IC307
IC327
IC310
IC311
IC404
IC401
IC402
IC403
IC405
CNJ401
CNJ402
CNJ403
CNB301
CNB302
D301
D302
D303
D401
D402
D403
D404
D405
D406
D407
D408
D409
Q401
Q404
Q405
Q406
Q407
Q408
Q409
X301
X302
X401
L501
L502
L503
C410
C411
1-639-6

e page 12 for Semiconductor lead layouts.



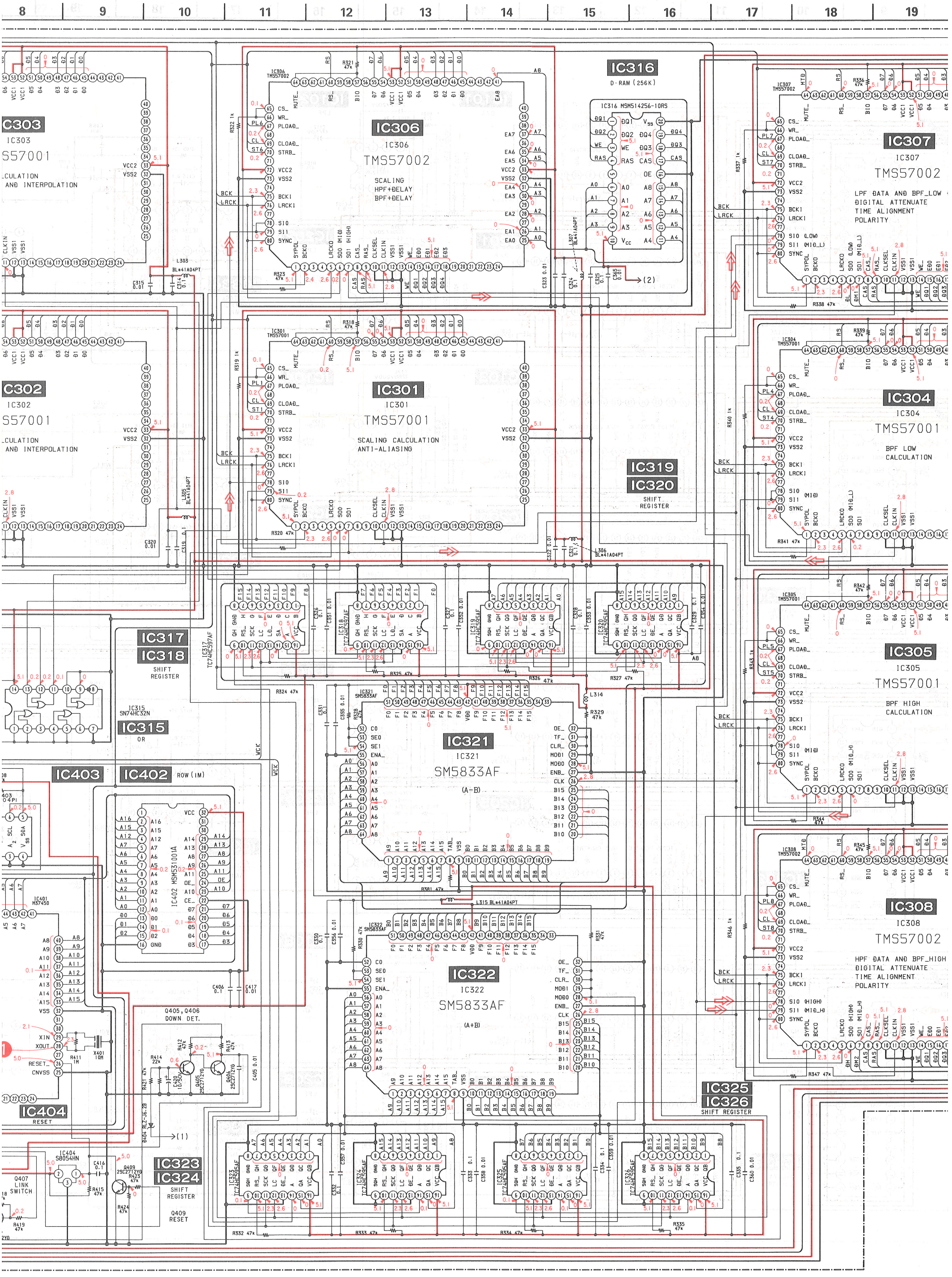
4
5
6
7
8
9
10
11
12
13
14
15
16
17
INPUT DIGITAL
OUTPUT MODE
3 WAY
4 WAY
SW309
CNJ401
CNJ402
CNJ403
[FUSE HOLDER BOARD]
CNP403
F401
3A
1-639-625
12
(INSIDE VIEW)
CNJ401
XES-P1
UNILINK
DISPLAY
CNJ402
IC316
IC328
IC327
IC312
IC301
IC302
IC303
IC304
IC305
IC306
IC307
IC308
IC309
IC310
IC311
IC313
IC314
IC315
IC326
IC402
IC405
CNB301
CNB302
TO ANALOG BOARD CNJ301
TO ANALOG BOARD CNJ302
A
B
1-639-626
12

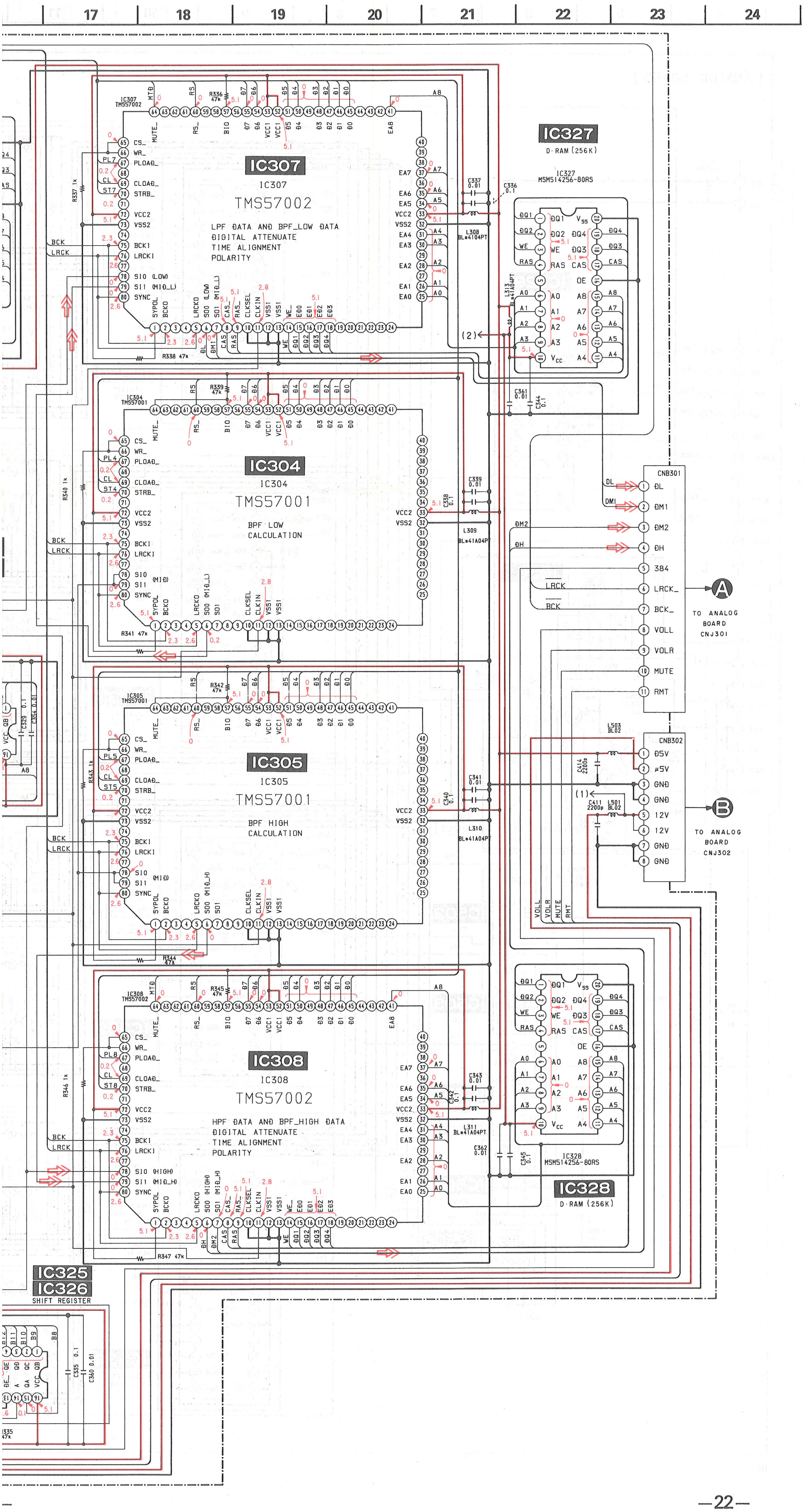
3-6. SCHEMATIC DIAGRAM –DIGITAL SECTION– •See page 9 for IC Block Diagrams.

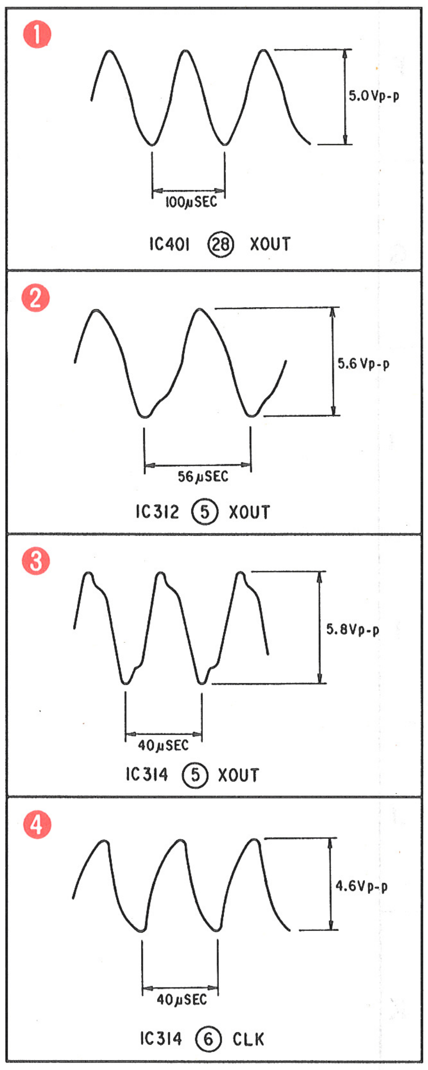

1
2
3
4
5
6
7
8
A
B
C
D
E
F
G
H
I
J
K
L
M
N
O
[DIGITAL BOARD]
IC310
INV.
IC310 SN74HC04NS
IC309
OPITICAL DETECT
IC309 GP1F32R
VDD
GND
SG
INPUT DIGITAL
IC311
F.F
IC311 SN74HC107NS
IC312
INTERFACE RECEIVER
IC312 YM3623B
IC313
IC313 MC74HC00AF
M·M, DELAY
IC314
OSC
IC314 TC74HCU04AF
IC303
IC303 TMS57001
TMS5700
LPF_LCH CALCULATION DECIMATION AND INTER
IC302
IC302 TMS57001
LPF_RCH CALCULATION DECIMATION AND INTER
IC405
COMP.
IC405 NJM2903M
IC403 X24C04PI
IC401
IC401 M37450M8
MAIN MICRO COMPUTER
Q401 POWER SWITCH
Q401 DTA124EK
Q408 BUS ON SWITCH
Q404 DATA OUT
Q407 LINK SWITCH
CNJ401
CNJ402
CNJ403
XES-PI
UNI LINK
DISPLAY
CNJ401, 402
1 X
2 RESET
3 SIRCS
4 CLK
5 DATA
6 BUS ON
7 BATT
8 GND
TOTAL CURRENT 1.23A
OUTPUT MODE 4WAY↔3WAY
SW401
[FUSE HOLDER BOARD]
F401 3A
CNB403
16
1
2
3
4

Note on Schematic Diagram :

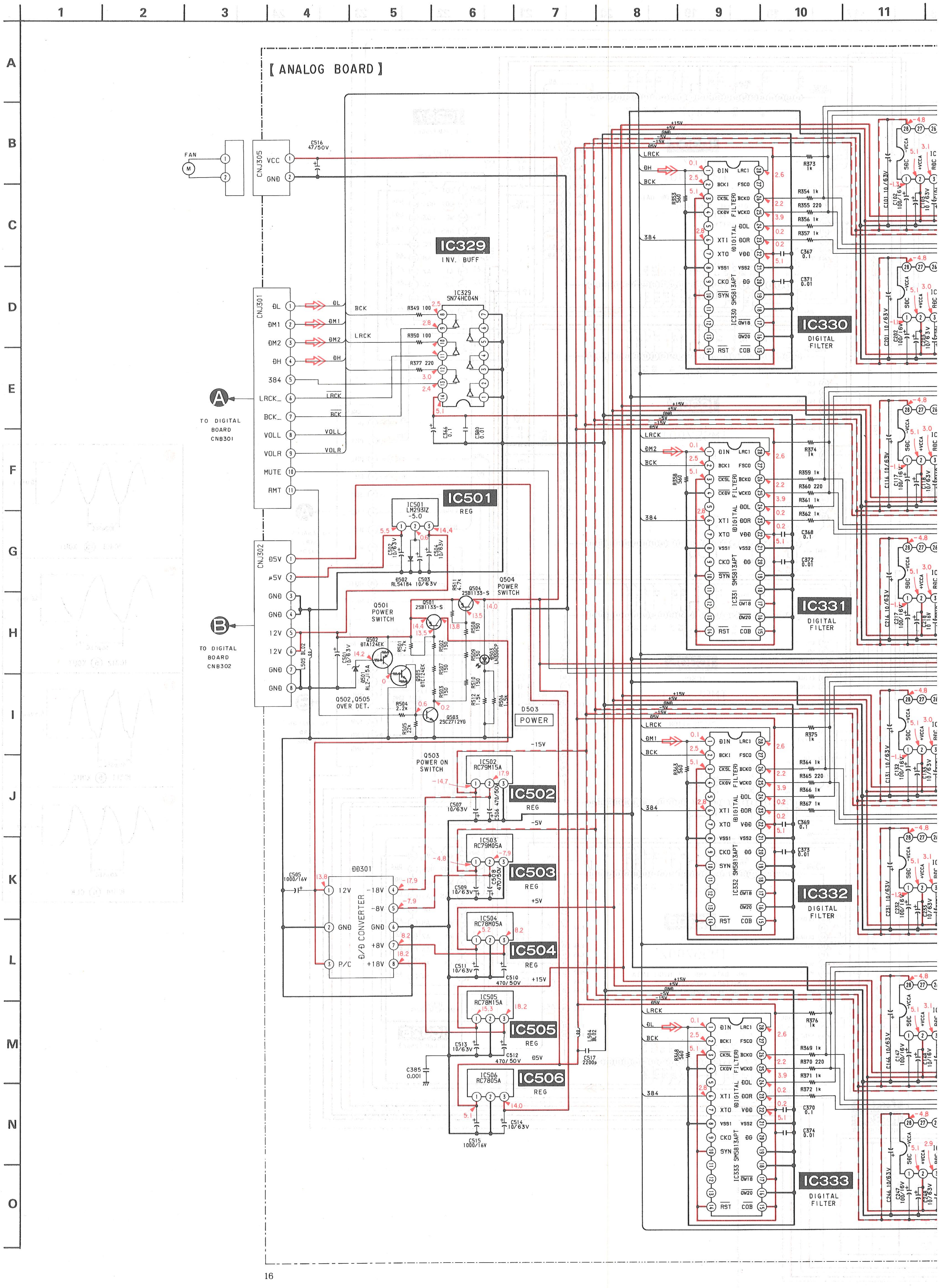
- All capacitors are in μF unless otherwise noted. pF: μμF 50WV or less are not indicated except for electrolytics and tantalums.
- All resistors are in Ω and ¼ W or less unless otherwise specified.
- ▬▬ : B + Line.
- ▬ ▬ ▬ : B – Line.
- Total current is measured with no signal.
- Power voltage is dc 14.4 V and fed with regulated dc power supply from external power voltage jack.
- Voltage and waveforms are dc with respect to ground under no-signal conditions.
- Voltages are taken with a VOM (input impedance 10 MΩ). Voltage variations may be noted due to normal production tolerances.
- Waveforms are taken with a oscilloscope. Voltage variations may be noted due to normal production tolerances.
- Circled numbers refer to waveforms.
- Signal path.
  - ⇨ : AUDIO
  - ⇨» : DIGITAL


8
9
10
11
12
13
14
15
16
17
18
19
IC303
IC303
S57001
CULATION
AND INTERPOLATION
IC306
IC306
TMS57002
SCALING
HPF+DELAY
BPF+DELAY
IC316
D-RAM (256K)
IC316 MSM514256-10RS
IC307
IC307
TMS57002
LPF DATA AND BPF_LOW
DIGITAL ATTENUATE
TIME ALIGNMENT
POLARITY
IC302
IC302
S57001
CULATION
AND INTERPOLATION
IC301
IC301
TMS57001
SCALING CALCULATION
ANTI-ALIASING
IC304
IC304
TMS57001
BPF LOW
CALCULATION
IC319
IC320
SHIFT
REGISTER
IC317
IC318
SHIFT
REGISTER
IC317 TC74HC597AF
IC318 TC74HC597AF
IC319 TC74HC595AF
IC320 TC74HC595AF
IC315
SN74HC32N
IC315
OR
IC321
IC321
SM5833AF
(A-B)
IC305
IC305
TMS57001
BPF HIGH
CALCULATION
IC403
IC402
ROW (1M)
IC402 MSM531001A
IC401
M37450
IC322
IC322
SM5833AF
(A+B)
IC308
IC308
TMS57002
HPF DATA AND BPF_HIGH
DIGITAL ATTENUATE
TIME ALIGNMENT
POLARITY
Q405, Q406
DOWN DET.
Q405 2SC2712YG
Q406 2SC2712YG
IC404
RESET
IC404 S8054HN
Q407
LINK
SWITCH
Q409 2SC2712YG
IC323
IC324
SHIFT
REGISTER
Q409
RESET
IC325
IC326
SHIFT REGISTER
IC323 TC74HC595AF
IC324 TC74HC595AF
IC325 TC74HC595AF
IC326 TC74HC595AF
L303 BL=41A04PT
L305 BL=41A04PT
L306 BL=41A04PT
L307 BL=41A04PT
L314
L315 BL=41A04PT
X401 10M
D404 RLZ-J6.2B
BCK
LRCK
WCK
WEK
XIN
XOUT
RESET_
CNVSS
(1)
(2)


17
18
19
20
21
22
23
24
IC307
TMS57002
LPF DATA AND BPF_LOW DATA
DIGITAL ATTENUATE
TIME ALIGNMENT
POLARITY
IC327
D-RAM (256K)
IC327
MSM514256-80RS
IC304
TMS57001
BPF LOW
CALCULATION
IC305
TMS57001
BPF HIGH
CALCULATION
IC308
TMS57002
HPF DATA AND BPF_HIGH DATA
DIGITAL ATTENUATE
TIME ALIGNMENT
POLARITY
IC328
MSM514256-80RS
IC328
D-RAM (256K)
IC325
IC326
SHIFT REGISTER
CNB301
ĐL
ĐM1
ĐM2
ĐH
384
LRCK_
BCK_
VOLL
VOLR
MUTE
RMT
TO ANALOG BOARD CNJ301
A
CNB302
Đ5V
μ5V
GND
GND
12V
12V
GND
GND
TO ANALOG BOARD CNJ302
B
R337 1k
R340 1k
R343 1k
R346 1k
R338 47k
R341 47k
R344 47k
R347 47k
L308 BL=4104PT
L309 BL=41A04PT
L310 BL=41A04PT
L311 BL=41A04PT
L313 BL=41A04PT
L503 BL02
L501 BL02
C414 2200p
C411 2200p
(1)
(2)


①
5.0Vp-p
100μSEC
IC401 ㉘ XOUT
②
5.6Vp-p
56μSEC
IC312 ⑤ XOUT
③
5.8Vp-p
40μSEC
IC314 ⑤ XOUT
④
4.6Vp-p
40μSEC
IC314 ⑥ CLK

3-7. SCHEMATIC DIAGRAM – ANALOG SECTION – •See page 9 for IC Block Diagrams.



1
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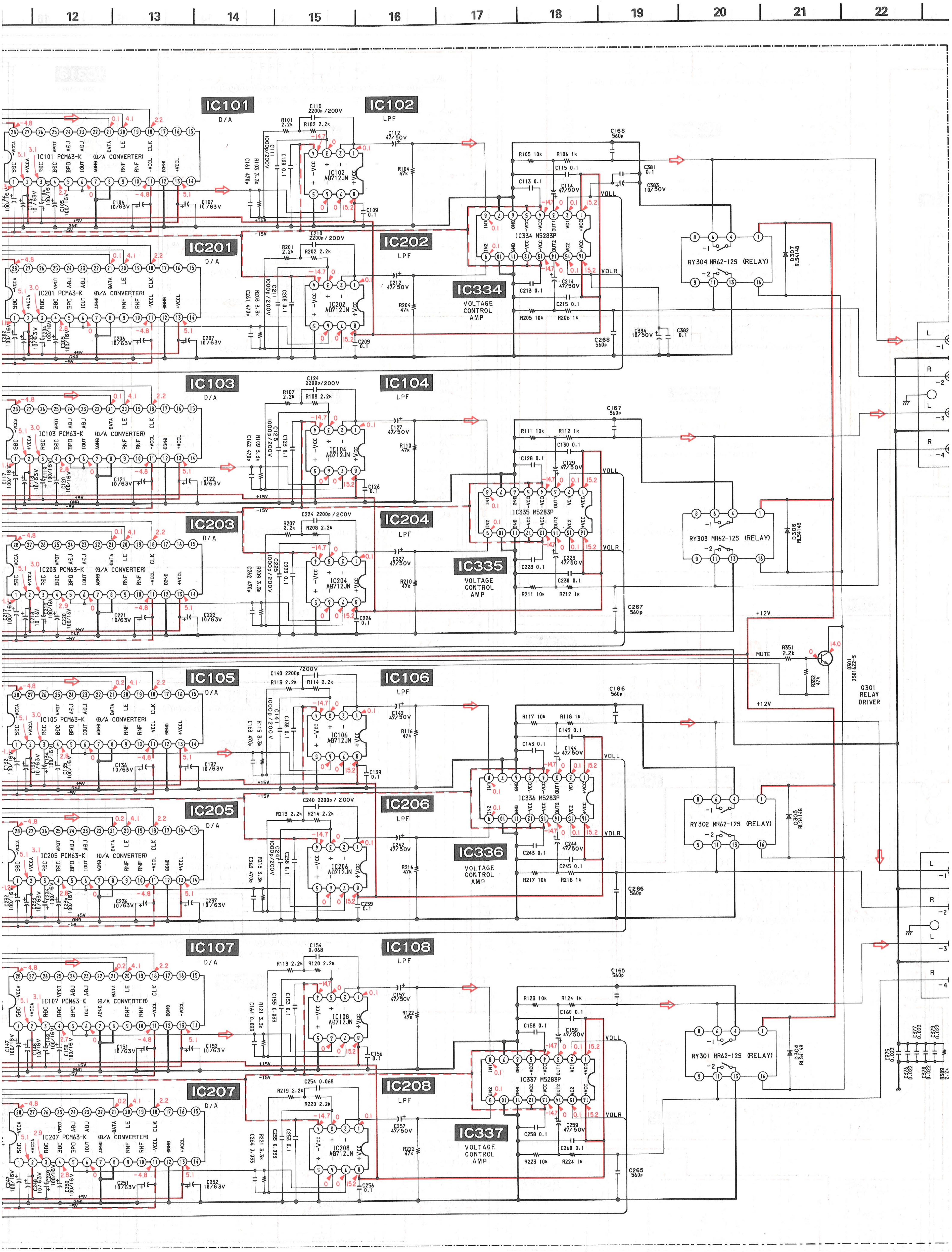
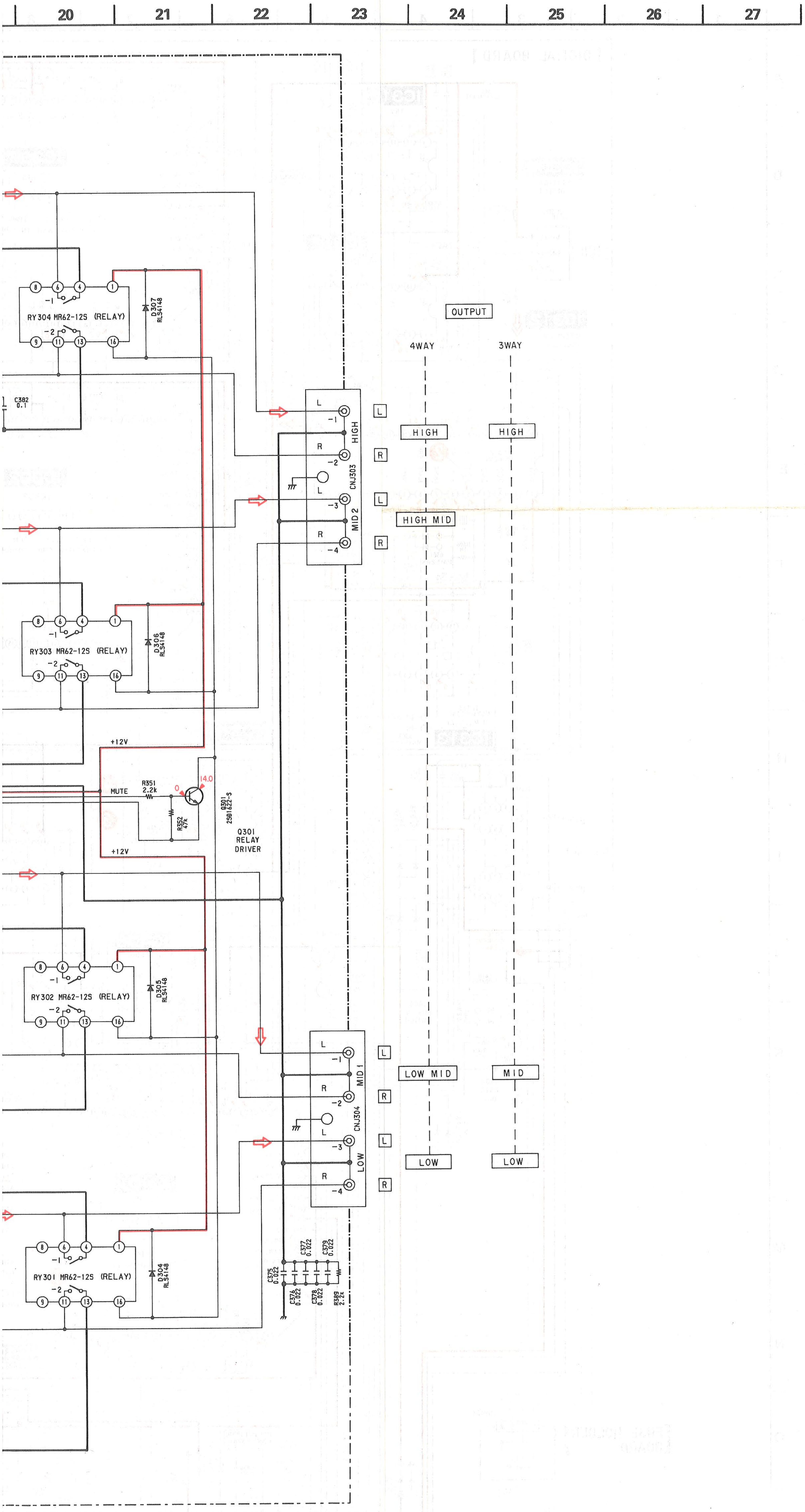
5
6
7
8
9
10
11
A
B
C
D
E
F
G
H
I
J
K
L
M
N
O
【ANALOG BOARD】
FAN
M
CNJ305
VCC
GND
C516 47/50V
CNJ301
DL
DM1
DM2
DH
384
LRCK
BCK
VOLL
VOLR
MUTE
RMT
TO DIGITAL BOARD CNB301
TO DIGITAL BOARD CNB302
CNJ302
D5V
+5V
12V
IC329
INV. BUFF
IC329 SN74HC04N
R349 100
R350 100
R377 220
C366 0.1
C380 0.01
IC501
REG
IC501 LM2931Z -5.0
C502 10/63V
C504 10/63V
D502 RLS4184
C503 10/63V
Q501 POWER SWITCH
Q501 2SB1133-S
Q504 POWER SWITCH
Q504 2SB1133-S
Q502 DTA124EK
Q505 DTC124EK
D501 RLZ-J15A
C501 10/63V
Q502,Q505 OVER DET.
Q503 2SC2712YG
D503 POWER
D503 LN350CP
L505 BL02
Q503 POWER ON SWITCH
IC502
IC502 RC79M15A
C507 10/63V
C506 470/50V
-15V
-5V
IC503
IC503 RC79M05A
C509 10/63V
C508 470/50V
+5V
IC504
IC504 RC78M05A
C511 10/63V
C510 470/50V
+15V
IC505
IC505 RC78M15A
C513 10/63V
C512 470/50V
D5V
IC506
IC506 RC7805A
C514 10/63V
C515 1000/16V
C385 0.001
REG
DD301
D/D CONVERTER
12V
GND
P/C
-18V
-8V
+8V
+18V
C505 1000/16V
L504 BL02
C517 2200p
IC330
IC331
IC332
IC333
DIGITAL FILTER
SM5813APT
DIN
BCKI
CKSL
CKOV
XTI
XTO
VSS1
CKO
SYN
RST
LRCI
FSCO
BCKO
WCKO
DOL
DOR
VDD
VSS2
DG
OW18
OW20
COB
R353 560
R373 1k
R354 1k
R355 220
R356 1k
R357 1k
C367 0.1
C371 0.01
R358 560
R374 1k
R359 1k
R360 220
R361 1k
R362 1k
C368 0.1
C372 0.01
R363 560
R375 1k
R364 1k
R365 220
R366 1k
R367 1k
C369 0.1
C373 0.01
R368 560
R376 1k
R369 1k
R370 220
R371 1k
R372 1k
C370 0.1
C374 0.01

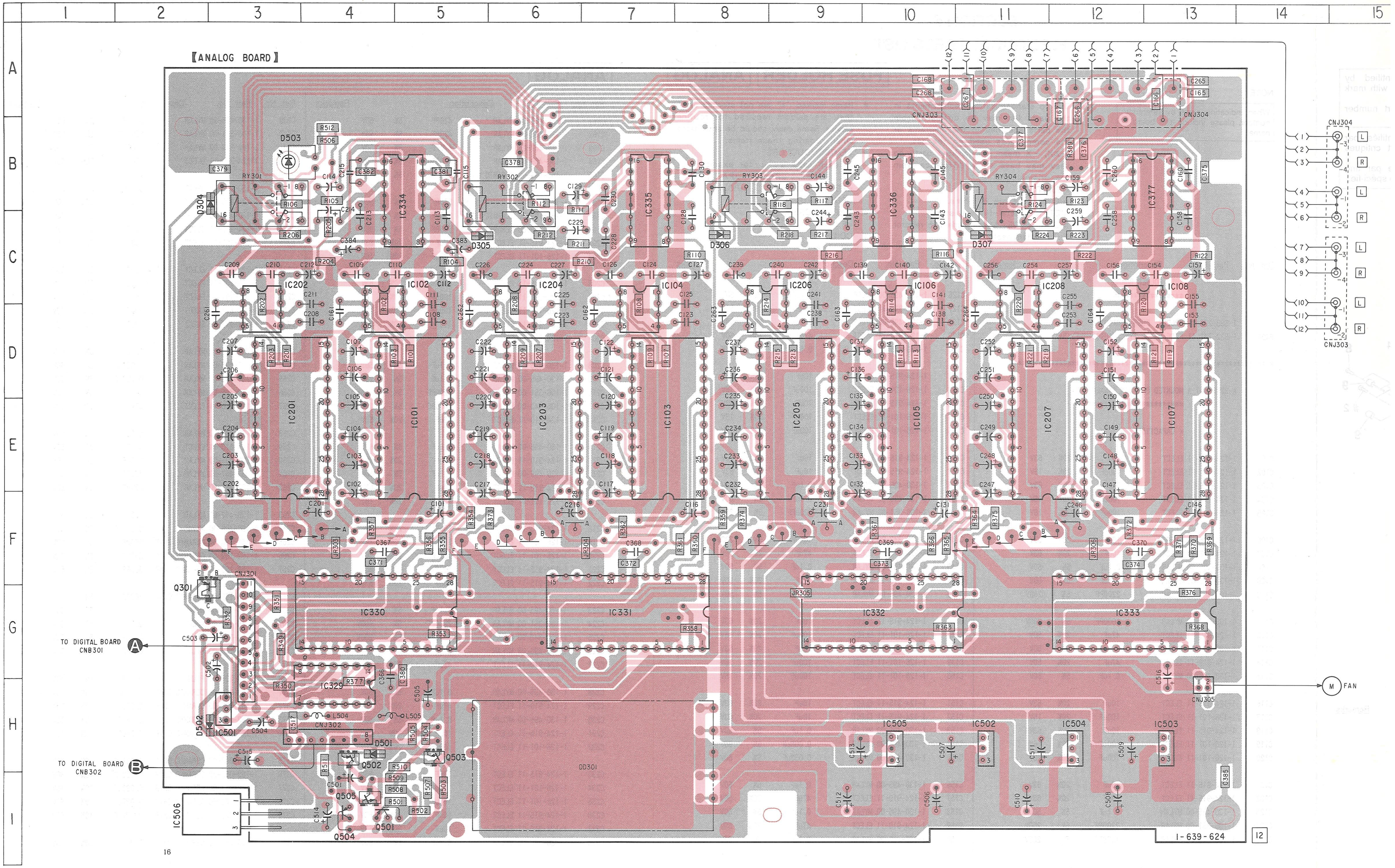

12
13
14
15
16
17
18
19
20
21
22
IC101
D/A
IC101 PCM63-K (D/A CONVERTER)
IC102
LPF
IC102 AD712JN
IC201
D/A
IC201 PCM63-K (D/A CONVERTER)
IC202
LPF
IC202 AD712JN
IC334
VOLTAGE CONTROL AMP
IC334 M5283P
RY304 MR62-12S (RELAY)
D307 RLS4148
IC103
D/A
IC103 PCM63-K (D/A CONVERTER)
IC104
LPF
IC104 AD712JN
IC203
D/A
IC203 PCM63-K (D/A CONVERTER)
IC204
LPF
IC204 AD712JN
IC335
VOLTAGE CONTROL AMP
IC335 M5283P
RY303 MR62-12S (RELAY)
D306 RLS4148
+12V
MUTE
R351 2.2k
R352 47k
Q301 2SB1622-S
Q301 RELAY DRIVER
IC105
D/A
IC105 PCM63-K (D/A CONVERTER)
IC106
LPF
IC106 AD712JN
IC205
D/A
IC205 PCM63-K (D/A CONVERTER)
IC206
LPF
IC206 AD712JN
IC336
VOLTAGE CONTROL AMP
IC336 M5283P
RY302 MR62-12S (RELAY)
D305 RLS4148
IC107
D/A
IC107 PCM63-K (D/A CONVERTER)
IC108
LPF
IC108 AD712JN
IC207
D/A
IC207 PCM63-K (D/A CONVERTER)
IC208
LPF
IC208 AD712JN
IC337
VOLTAGE CONTROL AMP
IC337 M5283P
RY301 MR62-12S (RELAY)
D304 RLS4148
VOLL
VOLR
+5V
GND
-5V
+15V
-15V
L
R

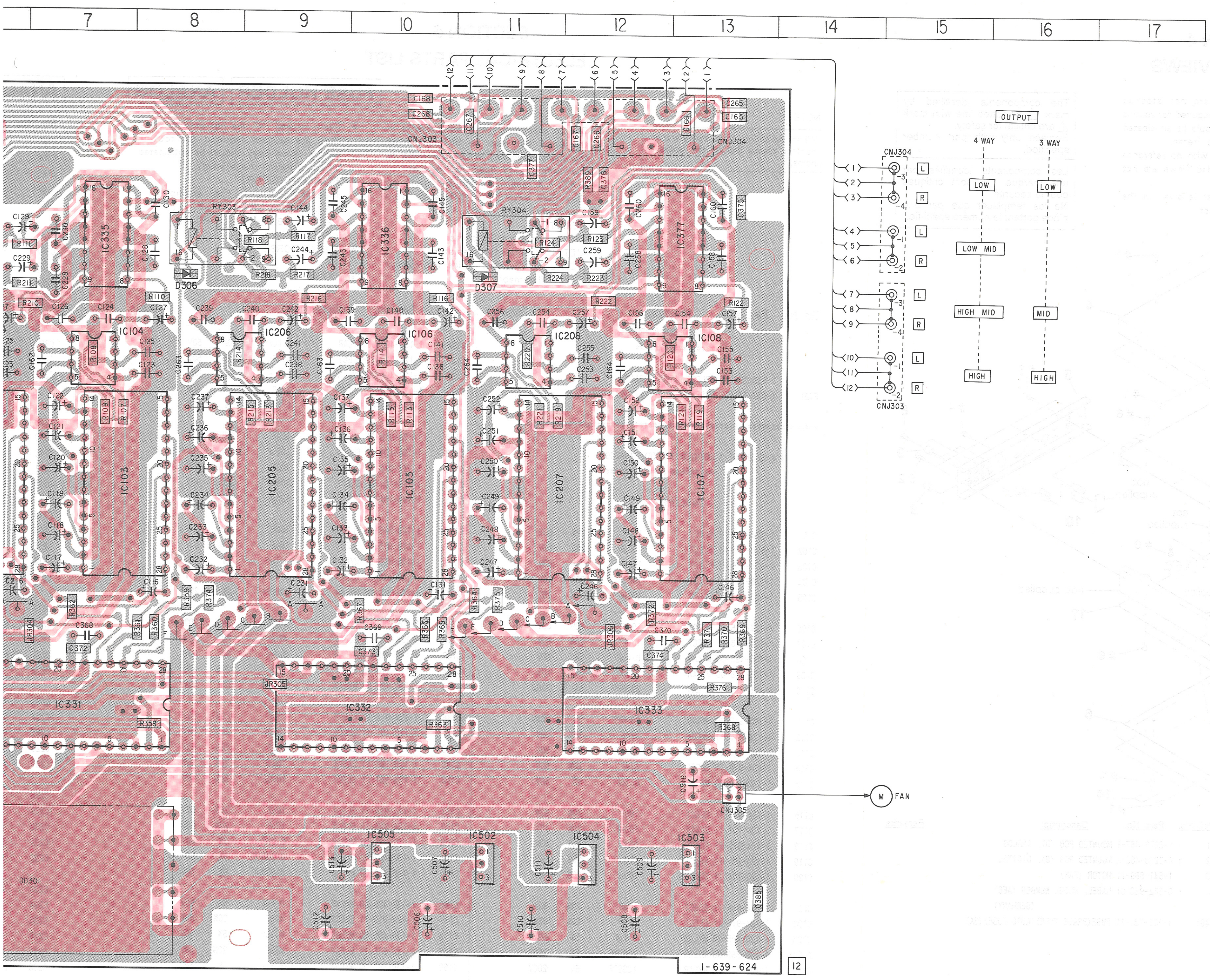

20
21
22
23
24
25
26
27
OUTPUT
4WAY
3WAY
HIGH
HIGH
HIGH MID
LOW MID
MID
LOW
LOW
RY304 MR62-12S (RELAY)
D307 RLS4148
C302 0.1
RY303 MR62-12S (RELAY)
D306 RLS4148
CNJ303
HIGH
MID 2
L
R
-1
-2
-3
-4
+12V
MUTE
R351 2.2k
R352 47k
0
14.0
Q301 2SB1622-S
Q301 RELAY DRIVER
RY302 MR62-12S (RELAY)
D305 RLS4148
CNJ304
MID 1
LOW
RY301 MR62-12S (RELAY)
D304 RLS4148
C375 0.022
C376 0.022
C377 0.022
C378 0.022
C379 0.022
R389 2.2k

Note on Schematic Diagram :

- All capacitors are in µF unless otherwise noted. pF: µµF 50WV or less are not indicated except for electrolytics and tantalums.
- All resistors are in Ω and ¼ W or less unless otherwise specified.
- ▬▬ : B + Line.
- ▬ ▬ ▬ : B − Line.
- Total current is measured with no signal.
- Power voltage is dc 14.4 V and fed with regulated dc power supply from external power voltage jack.
- Voltage and waveforms are dc with respect to ground under no-signal conditions.
- Voltages are taken with a VOM (input impedance 10 MΩ). Voltage variations may be noted due to normal production tolerances.
- Waveforms are taken with a oscilloscope. Voltage variations may be noted due to normal production tolerances.
- Circled numbers refer to waveforms.
- Signal path.
  - ⇨ : AUDIO
  - ⇨ : DIGITAL

3-8. PRINTED WIRING BOARD - ANALOG SECTION- •See page 12 for Semiconductor lead layouts.


【ANALOG BOARD】
TO DIGITAL BOARD CNB301
TO DIGITAL BOARD CNB302
A
B
FAN
CNJ303
CNJ304
CNJ305
CNJ301
CNJ302
RY301
RY302
RY303
RY304
IC101
IC102
IC103
IC104
IC105
IC106
IC107
IC108
IC201
IC202
IC203
IC204
IC205
IC206
IC207
IC208
IC329
IC330
IC331
IC332
IC333
IC334
IC335
IC336
IC377
IC501
IC502
IC503
IC504
IC505
IC506
DD301
D304
D305
D306
D307
D501
D502
D503
Q301
Q501
Q502
Q503
Q504
Q505
L504
L505
1-639-624
12
16


7
8
9
10
11
12
13
14
15
16
17
CNJ303
CNJ304
CNJ305
OUTPUT
4 WAY
3 WAY
LOW
LOW MID
HIGH MID
HIGH
MID
L
R
FAN
M
RY303
RY304
D306
D307
IC104
IC206
IC106
IC208
IC108
IC103
IC205
IC105
IC207
IC107
IC335
IC336
IC337
IC331
IC332
IC333
IC505
IC502
IC504
IC503
1-639-624
12

· Semiconductor Location

Ref. No.	Location
D304	B-3
D305	C-5
D306	C-8
D307	C-11
D501	H-4
D502	H-3
D503	B-3
IC101	E-5
IC102	D-4
IC103	E-7
IC104	D-7
IC105	E-10
IC106	D-10
IC107	E-13
IC108	D-13
IC201	E-3
IC202	D-3
IC203	E-6
IC204	D-6
IC205	E-9
IC206	D-9
IC207	E-12
IC208	D-11
IC329	H-4
IC330	G-4
IC331	G-7
IC332	G-10
IC333	G-12
IC334	B-5
IC335	B-7
IC336	B-10
IC337	B-13
IC501	H-3
IC502	H-11
IC503	H-13
IC504	H-12
IC505	H-10
IC506	I-3
Q301	G-3
Q501	I-4
Q502	H-4
Q503	H-5
Q504	I-4
Q505	I-4

Note on Mounting Diagram :

- ○—— : Parts extracted from the component side.
- ● : Through hole.
- ▨ : Pattern on the side which is seen.
- ▨ : Pattern of the rear side.
- □ : Chip components extracted from the rear side.

SECTION 4
EXPLODED VIEWS

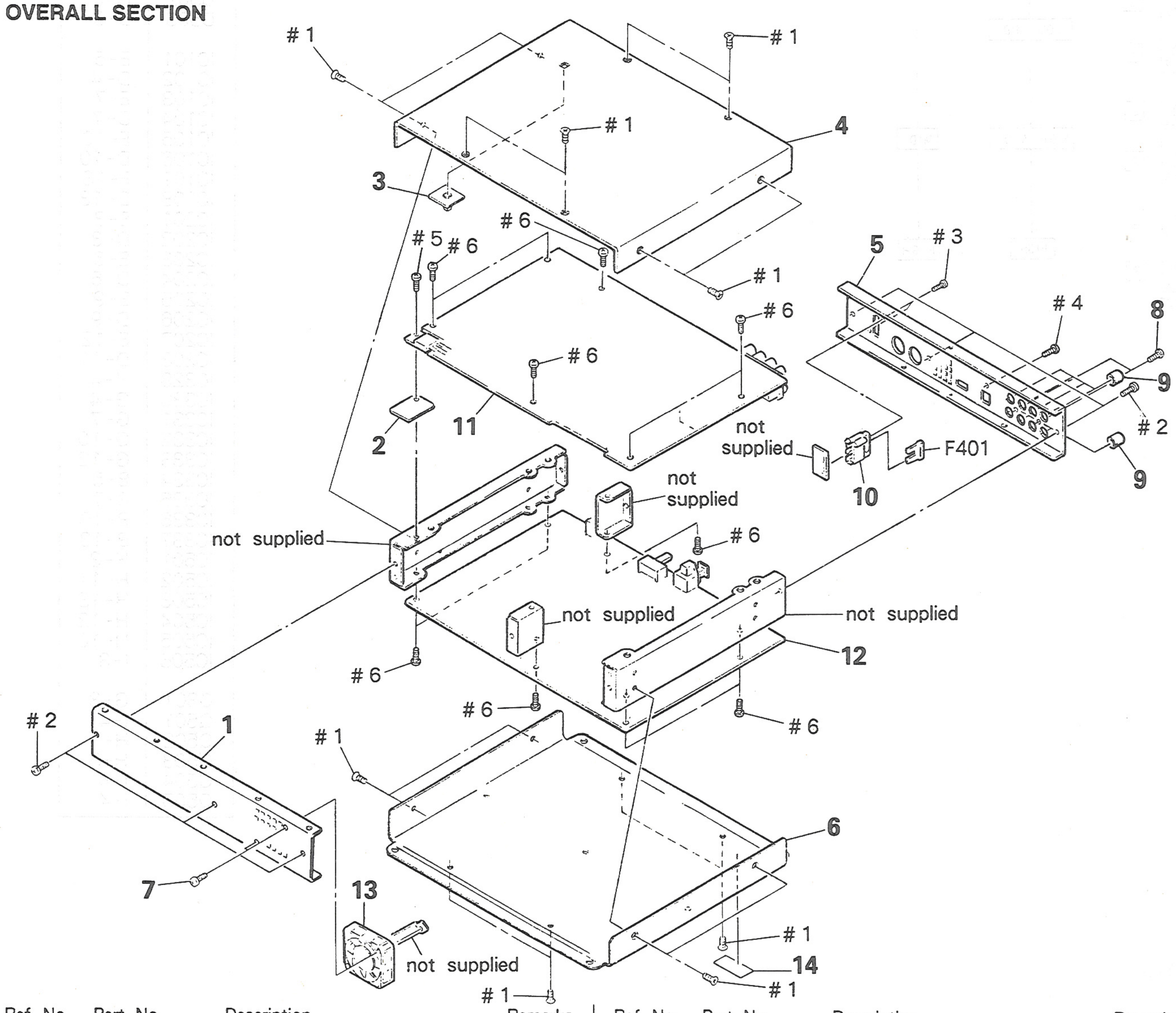
NOTE:

- − XX, − X mean standardized parts, so they may have some differences from the original one.
- Color Indication of Appearance Parts
  Example :
  KNOB, BALANCE (WHITE)...(RED)
  ↑ Parts color ↑ Cabinet's color
- Items marked "*" are not stocked since they are seldom required for routine service. Some delay should be anticipated when ordering these items.
- The mechanical parts with no reference number in the exploded views are not supplied.
- Hardware (# mark) list is given in the last of this parts list.

The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety.
Replace only with part number specified.

Les composants identifiés par une marque ⚠ sont critiques pour la sécurité.
Ne les remplacer que par une pièce portant le numéro spéci-fie.

OVERALL SECTION



Ref. No.	Part No.	Description	Remarks
1	* 3-366-464-11	PANEL (F)	
2	* 3-372-796-01	HEAT SINK (IC)	
3	* 3-366-469-01	INDICATOR (POWER)	
4	* 3-366-462-11	CASE (UPPER)	
5	* 3-366-471-01	PANEL (B)	
6	* 3-366-463-01	CASE (LOWER)	
7	3-372-144-01	SCREW +PS 2.6X16	
8	7-621-849-00	SCREW, TAPPING, (3X8)	
9	3-355-210-01	COVER, PIN JACK	
10	1-533-226-11	HOLDER, FUSE (BRAID)	
11	* A-3273-467-A	MOUNTED PCB (B), ANALOG	
12	* A-3273-465-A	MOUNTED PCB (B), DIGITAL	
13	1-541-869-11	MOTOR (FAN)	
14	* 3-372-933-01	LABEL, MODEL NUMBER (AE6) (GERMANY)	
F401	1-532-731-11	FUSE (BRADE TYPE) (AUTO FUSE) (3A)	

SECTION 5
ELECTRICAL PARTS LIST

FUSE HOLDER **ANALOG**

NOTE :

When indicating parts by reference number, please include the board name.

- Due to standardization, replacements in the parts list may be different from the parts specified in the diagrams or the components used on the set.
- − XX, − X mean standardized parts, so they may have some difference from the original one.
- RESISTORS
  All resistors are in ohms.
  METAL : metal-film resistor
  METAL OXIDE : Metal Oxide-film resistor
  F : nonflammable
- Items marked "*" are not stocked since they are seldom required for routine service. Some delay should be anticipated when ordering these items.
- SEMICONDUCTORS
  In each case, u : μ, for example :
  uA... : μA... , uPA... , μPA... ,
  uPB... , μPB... , uPC... , μPC... ,
  uPD..., μPD...
- CAPACITORS :
  uF : μF
- COILS
  uH : μH

Ref. No.	Part No.	Description	Remarks
		FUSE HOLDER BOARD *****************	
	1-533-226-11	HOLDER, FUSE (BRAID)	
F401	1-532-731-11	FUSE (BRADE TYPE) (AUTO FUSE) (3A)	
**			
	* A-3273-467-A	MOUNTED PCB (B), ANALOG ***********************	
		< CAPACITOR >	
C101	1-124-915-11	ELECT 10uF 20% 63V	
C102	1-126-101-11	ELECT 100uF 20% 16V	
C103	1-124-915-11	ELECT 10uF 20% 63V	
C104	1-126-101-11	ELECT 100uF 20% 16V	
C105	1-126-101-11	ELECT 100uF 20% 16V	
C106	1-124-915-11	ELECT 10uF 20% 63V	
C107	1-124-915-11	ELECT 10uF 20% 63V	
C108	1-130-495-00	MYLAR 0.1uF 5% 50V	
C109	1-130-495-00	MYLAR 0.1uF 5% 50V	
C110	1-106-351-00	MYLAR 2200PF 5% 200V	
C111	1-106-343-00	MYLAR 1000PF 5% 200V	
C112	1-124-910-11	ELECT 47uF 20% 50V	
C113	1-130-495-00	MYLAR 0.1uF 5% 50V	
C114	1-124-910-11	ELECT 47uF 20% 50V	
C115	1-130-495-00	MYLAR 0.1uF 5% 50V	
C116	1-124-915-11	ELECT 10uF 20% 63V	
C117	1-126-101-11	ELECT 100uF 20% 16V	
C118	1-124-915-11	ELECT 10uF 20% 63V	
C119	1-126-101-11	ELECT 100uF 20% 16V	
C120	1-126-101-11	ELECT 100uF 20% 16V	
C121	1-124-915-11	ELECT 10uF 20% 63V	
C122	1-124-915-11	ELECT 10uF 20% 63V	
C123	1-130-495-00	MYLAR 0.1uF 5% 50V	
C124	1-106-351-00	MYLAR 2200PF 5% 200V	
C125	1-106-343-00	MYLAR 1000PF 5% 200V	
C126	1-130-495-00	MYLAR 0.1uF 5% 50V	
C127	1-124-910-11	ELECT 47uF 20% 50V	
C128	1-130-495-00	MYLAR 0.1uF 5% 50V	
C129	1-124-910-11	ELECT 47uF 20% 50V	
C130	1-130-495-00	MYLAR 0.1uF 5% 50V	
C131	1-124-915-11	ELECT 10uF 20% 63V	
C132	1-126-101-11	ELECT 100uF 20% 16V	
C133	1-124-915-11	ELECT 10uF 20% 63V	
C134	1-126-101-11	ELECT 100uF 20% 16V	
C135	1-126-101-11	ELECT 100uF 20% 16V	
C136	1-124-915-11	ELECT 10uF 20% 63V	
C137	1-124-915-11	ELECT 10uF 20% 63V	
C138	1-130-495-00	MYLAR 0.1uF 5% 50V	
C139	1-130-495-00	MYLAR 0.1uF 5% 50V	
C140	1-106-351-00	MYLAR 2200PF 5% 200V	
C141	1-106-343-00	MYLAR 1000PF 5% 200V	
C142	1-124-910-11	ELECT 47uF 20% 50V	
C143	1-130-495-00	MYLAR 0.1uF 5% 50V	
C144	1-124-910-11	ELECT 47uF 20% 50V	
C145	1-130-495-00	MYLAR 0.1uF 5% 50V	
C146	1-124-915-11	ELECT 10uF 20% 63V	
C147	1-126-101-11	ELECT 100uF 20% 16V	
C148	1-124-915-11	ELECT 10uF 20% 63V	
C149	1-126-101-11	ELECT 100uF 20% 16V	
C150	1-126-101-11	ELECT 100uF 20% 16V	
C151	1-124-915-11	ELECT 10uF 20% 63V	
C152	1-124-915-11	ELECT 10uF 20% 63V	
C153	1-130-495-00	MYLAR 0.1uF 5% 50V	
C154	1-130-493-00	MYLAR 0.068uF 5% 50V	
C155	1-130-489-00	MYLAR 0.033uF 5% 50V	
C156	1-130-495-00	MYLAR 0.1uF 5% 50V	
C157	1-124-910-11	ELECT 47uF 20% 50V	
C158	1-130-495-00	MYLAR 0.1uF 5% 50V	
C159	1-124-910-11	ELECT 47uF 20% 50V	
C160	1-130-495-00	MYLAR 0.1uF 5% 50V	

ANALOG

Ref. No.	Part No.	Description				Remarks
C161	1-130-467-00	MYLAR	470PF	5%	50V	
C162	1-130-467-00	MYLAR	470PF	5%	50V	
C163	1-130-467-00	MYLAR	470PF	5%	50V	
C164	1-130-489-00	MYLAR	0.033uF	5%	50V	
C165	1-163-199-00	CERAMIC CHIP	560PF	5%	50V	
C166	1-163-199-00	CERAMIC CHIP	560PF	5%	50V	
C167	1-163-199-00	CERAMIC CHIP	560PF	5%	50V	
C168	1-163-199-00	CERAMIC CHIP	560PF	5%	50V	
C201	1-124-915-11	ELECT	10uF	20%	63V	
C202	1-126-101-11	ELECT	100uF	20%	16V	
C203	1-124-915-11	ELECT	10uF	20%	63V	
C204	1-126-101-11	ELECT	100uF	20%	16V	
C205	1-126-101-11	ELECT	100uF	20%	16V	
C206	1-124-915-11	ELECT	10uF	20%	63V	
C207	1-124-915-11	ELECT	10uF	20%	63V	
C208	1-130-495-00	MYLAR	0.1uF	5%	50V	
C209	1-130-495-00	MYLAR	0.1uF	5%	50V	
C210	1-106-351-00	MYLAR	2200PF	5%	200V	
C211	1-106-343-00	MYLAR	1000PF	5%	200V	
C212	1-124-910-11	ELECT	47uF	20%	50V	
C213	1-130-495-00	MYLAR	0.1uF	5%	50V	
C214	1-124-910-11	ELECT	47uF	20%	50V	
C215	1-130-495-00	MYLAR	0.1uF	5%	50V	
C216	1-124-915-11	ELECT	10uF	20%	63V	
C217	1-126-101-11	ELECT	100uF	20%	16V	
C218	1-124-915-11	ELECT	10uF	20%	63V	
C219	1-126-101-11	ELECT	100uF	20%	16V	
C220	1-126-101-11	ELECT	100uF	20%	16V	
C221	1-124-915-11	ELECT	10uF	20%	63V	
C222	1-124-915-11	ELECT	10uF	20%	63V	
C223	1-130-495-00	MYLAR	0.1uF	5%	50V	
C224	1-106-351-00	MYLAR	2200PF	5%	200V	
C225	1-106-343-00	MYLAR	1000PF	5%	200V	
C226	1-130-495-00	MYLAR	0.1uF	5%	50V	
C227	1-124-910-11	ELECT	47uF	20%	50V	
C228	1-130-495-00	MYLAR	0.1uF	5%	50V	
C229	1-124-910-11	ELECT	47uF	20%	50V	
C230	1-130-495-00	MYLAR	0.1uF	5%	50V	
C231	1-124-915-11	ELECT	10uF	20%	63V	
C232	1-126-101-11	ELECT	100uF	20%	16V	
C233	1-124-915-11	ELECT	10uF	20%	63V	
C234	1-126-101-11	ELECT	100uF	20%	16V	
C235	1-126-101-11	ELECT	100uF	20%	16V	
C236	1-124-915-11	ELECT	10uF	20%	63V	
C237	1-124-915-11	ELECT	10uF	20%	63V	
C238	1-130-495-00	MYLAR	0.1uF	5%	50V	
C239	1-130-495-00	MYLAR	0.1uF	5%	50V	
C240	1-106-351-00	MYLAR	2200PF	5%	200V	
C241	1-106-343-00	MYLAR	1000PF	5%	200V	
C242	1-124-910-11	ELECT	47uF	20%	50V	
C243	1-130-495-00	MYLAR	0.1uF	5%	50V	
C244	1-124-910-11	ELECT	47uF	20%	50V	
C245	1-130-495-00	MYLAR	0.1uF	5%	50V	
C246	1-124-915-11	ELECT	10uF	20%	63V	
C247	1-126-101-11	ELECT	100uF	20%	16V	
C248	1-124-915-11	ELECT	10uF	20%	63V	
C249	1-126-101-11	ELECT	100uF	20%	16V	
C250	1-126-101-11	ELECT	100uF	20%	16V	
C251	1-124-915-11	ELECT	10uF	20%	63V	
C252	1-124-915-11	ELECT	10uF	20%	63V	
C253	1-130-495-00	MYLAR	0.1uF	5%	50V	
C254	1-130-493-00	MYLAR	0.068uF	5%	50V	
C255	1-130-489-00	MYLAR	0.033uF	5%	50V	
C256	1-130-495-00	MYLAR	0.1uF	5%	50V	
C257	1-124-910-11	ELECT	47uF	20%	50V	
C258	1-130-495-00	MYLAR	0.1uF	5%	50V	
C259	1-124-910-11	ELECT	47uF	20%	50V	
C260	1-130-495-00	MYLAR	0.1uF	5%	50V	
C261	1-130-467-00	MYLAR	470PF	5%	50V	
C262	1-130-467-00	MYLAR	470PF	5%	50V	
C263	1-130-467-00	MYLAR	470PF	5%	50V	
C264	1-130-489-00	MYLAR	0.033uF	5%	50V	
C265	1-163-199-00	CERAMIC CHIP	560PF	5%	50V	
C266	1-163-199-00	CERAMIC CHIP	560PF	5%	50V	
C267	1-163-199-00	CERAMIC CHIP	560PF	5%	50V	
C268	1-163-199-00	CERAMIC CHIP	560PF	5%	50V	
C366	1-136-165-00	FILM	0.1uF	5%	50V	
C367	1-136-165-00	FILM	0.1uF	5%	50V	
C368	1-136-165-00	FILM	0.1uF	5%	50V	
C369	1-136-165-00	FILM	0.1uF	5%	50V	
C370	1-136-165-00	FILM	0.1uF	5%	50V	
C371	1-163-059-00	CERAMIC CHIP	0.01uF	10%	50V	
C372	1-163-059-00	CERAMIC CHIP	0.01uF	10%	50V	
C373	1-163-059-00	CERAMIC CHIP	0.01uF	10%	50V	
C374	1-163-059-00	CERAMIC CHIP	0.01uF	10%	50V	
C375	1-163-063-00	CERAMIC CHIP	0.022uF	10%	50V	
C376	1-163-063-00	CERAMIC CHIP	0.022uF	10%	50V	
C377	1-163-063-00	CERAMIC CHIP	0.022uF	10%	50V	
C378	1-163-063-00	CERAMIC CHIP	0.022uF	10%	50V	
C379	1-163-063-00	CERAMIC CHIP	0.022uF	10%	50V	
C380	1-163-059-00	CERAMIC CHIP	0.01uF	10%	50V	

ANALOG

Ref. No.	Part No.	Description	Remarks
C380	1-163-059-00	CERAMIC CHIP 0.01uF 10% 50V	
C381	1-163-077-00	CERAMIC CHIP 0.1uF 10% 25V	
C382	1-163-077-00	CERAMIC CHIP 0.1uF 10% 25V	
C383	1-124-915-11	ELECT 10uF 20% 16V	
C384	1-124-915-11	ELECT 10uF 20% 16V	
C385	1-163-205-00	CERAMIC CHIP 0.001uF 5% 50V	
C501	1-124-915-11	ELECT 10uF 20% 63V	
C502	1-124-915-11	ELECT 10uF 20% 63V	
C503	1-124-915-11	ELECT 10uF 20% 63V	
C504	1-124-915-11	ELECT 10uF 20% 63V	
C505	1-126-013-11	ELECT 1000uF 20% 16V	
C506	1-124-913-11	ELECT 470uF 20% 50V	
C507	1-124-915-11	ELECT 10uF 20% 63V	
C508	1-124-913-11	ELECT 470uF 20% 50V	
C509	1-124-915-11	ELECT 10uF 20% 63V	
C510	1-124-913-11	ELECT 470uF 20% 50V	
C511	1-124-915-11	ELECT 10uF 20% 63V	
C512	1-124-913-11	ELECT 470uF 20% 50V	
C513	1-124-915-11	ELECT 10uF 20% 63V	
C514	1-124-915-11	ELECT 10uF 20% 63V	
C515	1-126-013-11	ELECT 1000uF 20% 16V	
C516	1-124-910-11	ELECT 47uF 20% 50V	
C517	1-163-213-00	CERAMIC CHIP 0.0022uF 5% 50V	

< CONNECTOR >

Ref. No.	Part No.	Description	Remarks
CNJ301	* 1-564-514-11	PLUG, CONNECTOR 11P	
CNJ302	* 1-564-511-11	PLUG, CONNECTOR 8P	
CNJ303	1-573-286-11	JACK, PIN 4P (OUTPUT:HIGH/HIGH MID)	
CNJ304	1-573-286-11	JACK, PIN 4P (OUTPUT:LOW/LOW MID)	
CNJ305	* 1-506-984-11	PIN, CONNECTOR (PC BOARD) 2P	

< DIODE >

Ref. No.	Part No.	Description	Remarks
D304	8-719-976-19	DIODE RLS-4148	
D305	8-719-976-19	DIODE RLS-4148	
D306	8-719-976-19	DIODE RLS-4148	
D307	8-719-976-19	DIODE RLS-4148	
D501	8-719-973-68	DIODE RLZ-J15A	
D502	8-719-976-19	DIODE RLS-4148	
D503	8-719-421-07	DIODE LN35GCP (POWER)	

< CONVERTER DC-DC >

Ref. No.	Part No.	Description	Remarks
DD301	1-466-527-11	CONVERTER UINT, DC-DC	

< IC >

Ref. No.	Part No.	Description	Remarks
IC101	8-759-510-35	IC PCM63P-K	
IC102	8-759-971-80	IC AD712JN	
IC103	8-759-510-35	IC PCM63P-K	
IC104	8-759-971-80	IC AD712JN	
IC105	8-759-510-35	IC PCM63P-K	
IC106	8-759-971-80	IC AD712JN	
IC107	8-759-510-35	IC PCM63P-K	
IC108	8-759-971-80	IC AD712JN	
IC201	8-759-510-35	IC PCM63P-K	
IC202	8-759-971-80	IC AD712JN	
IC203	8-759-510-35	IC PCM63P-K	
IC204	8-759-971-80	IC AD712JN	
IC205	8-759-510-35	IC PCM63P-K	
IC206	8-759-971-80	IC AD712JN	
IC207	8-759-510-35	IC PCM63P-K	
IC208	8-759-971-80	IC AD712JN	
IC329	8-759-916-14	IC SN74HC04AN	
IC330	8-759-999-32	IC SM5813APT	
IC331	8-759-999-32	IC SM5813APT	
IC332	8-759-999-32	IC SM5813APT	
IC333	8-759-999-32	IC SM5813APT	
IC334	8-759-635-26	IC M5283P	
IC335	8-759-635-26	IC M5283P	
IC336	8-759-635-26	IC M5283P	
IC337	8-759-635-26	IC M5283P	
IC501	8-759-979-68	IC LM2931Z-5.0	
IC502	8-759-982-58	IC RC79M15FA	
IC503	8-759-982-52	IC RC79M05FA	
IC504	8-759-982-31	IC RC78M05FA	
IC505	8-759-982-36	IC RC78M15FA	
IC506	8-759-982-05	IC RC7805FA	

< JUMPER RESISTOR >

Ref. No.	Part No.	Description	Remarks
JR303	1-216-296-00	METAL CHIP 0 5% 1/8W	
JR304	1-216-296-00	METAL CHIP 0 5% 1/8W	
JR305	1-216-296-00	METAL CHIP 0 5% 1/8W	
JR306	1-216-296-00	METAL CHIP 0 5% 1/8W	

< COIL >

Ref. No.	Part No.	Description	Remarks
L504	1-410-397-21	FERRITE BEAD INDUCTOR	
L505	1-410-397-21	FERRITE BEAD INDUCTOR	

ANALOG

Ref. No.	Part No.	Description	Remarks
		< TRANSISTOR >	
Q301	8-729-808-01	TRANSISTOR 2SD1622-S	
Q501	8-729-804-68	TRANSISTOR 2SB1133-S	
Q502	8-729-901-05	TRANSISTOR DTA124EK	
Q503	8-729-230-49	TRANSISTOR 2SC2712-YG	
Q504	8-729-804-68	TRANSISTOR 2SB1133-S	
Q505	8-729-901-00	TRANSISTOR DTC124EK	
		< RESISTOR >	
R101	1-259-999-11	CARBON MELF 2.2K 1% 1/8W	
R102	1-259-999-11	CARBON MELF 2.2K 1% 1/8W	
R103	1-260-002-11	CARBON MELF 3.3K 1% 1/8W	
R104	1-260-016-11	CARBON MELF 47K 1% 1/8W	
R105	1-260-008-11	CARBON MELF 10K 1% 1/8W	
R106	1-259-995-11	CARBON MELF 1K 1% 1/8W	
R107	1-259-999-11	CARBON MELF 2.2K 1% 1/8W	
R108	1-259-999-11	CARBON MELF 2.2K 1% 1/8W	
R109	1-260-002-11	CARBON MELF 3.3K 1% 1/8W	
R110	1-260-016-11	CARBON MELF 47K 1% 1/8W	
R111	1-260-008-11	CARBON MELF 10K 1% 1/8W	
R112	1-259-995-11	CARBON MELF 1K 1% 1/8W	
R113	1-259-999-11	CARBON MELF 2.2K 1% 1/8W	
R114	1-259-999-11	CARBON MELF 2.2K 1% 1/8W	
R115	1-260-002-11	CARBON MELF 3.3K 1% 1/8W	
R116	1-260-016-11	CARBON MELF 47K 1% 1/8W	
R117	1-260-008-11	CARBON MELF 10K 1% 1/8W	
R118	1-259-995-11	CARBON MELF 1K 1% 1/8W	
R119	1-259-999-11	CARBON MELF 2.2K 1% 1/8W	
R120	1-259-999-11	CARBON MELF 2.2K 1% 1/8W	
R121	1-260-002-11	CARBON MELF 3.3K 1% 1/8W	
R122	1-260-016-11	CARBON MELF 47K 1% 1/8W	
R123	1-260-008-11	CARBON MELF 10K 1% 1/8W	
R124	1-259-995-11	CARBON MELF 1K 1% 1/8W	
R201	1-259-999-11	CARBON MELF 2.2K 1% 1/8W	
R202	1-259-999-11	CARBON MELF 2.2K 1% 1/8W	
R203	1-260-002-11	CARBON MELF 3.3K 1% 1/8W	
R204	1-260-016-11	CARBON MELF 47K 1% 1/8W	
R205	1-260-008-11	CARBON MELF 10K 1% 1/8W	
R206	1-259-995-11	CARBON MELF 1K 1% 1/8W	
R207	1-259-999-11	CARBON MELF 2.2K 1% 1/8W	
R208	1-259-999-11	CARBON MELF 2.2K 1% 1/8W	
R209	1-260-002-11	CARBON MELF 3.3K 1% 1/8W	
R210	1-260-016-11	CARBON MELF 47K 1% 1/8W	
R211	1-260-008-11	CARBON MELF 10K 1% 1/8W	
R212	1-259-995-11	CARBON MELF 1K 1% 1/8W	
R213	1-259-999-11	CARBON MELF 2.2K 1% 1/8W	
R214	1-259-999-11	CARBON MELF 2.2K 1% 1/8W	
R215	1-260-002-11	CARBON MELF 3.3K 1% 1/8W	
R216	1-260-016-11	CARBON MELF 47K 1% 1/8W	
R217	1-260-008-11	CARBON MELF 10K 1% 1/8W	
R218	1-259-995-11	CARBON MELF 1K 1% 1/8W	
R219	1-259-999-11	CARBON MELF 2.2K 1% 1/8W	
R220	1-259-999-11	CARBON MELF 2.2K 1% 1/8W	
R221	1-260-002-11	CARBON MELF 3.3K 1% 1/8W	
R222	1-260-016-11	CARBON MELF 47K 1% 1/8W	
R223	1-260-008-11	CARBON MELF 10K 1% 1/8W	
R224	1-259-995-11	CARBON MELF 1K 1% 1/8W	
R349	1-259-983-11	CARBON MELF 100 1% 1/8W	
R350	1-259-983-11	CARBON MELF 100 1% 1/8W	
R351	1-259-999-11	CARBON MELF 2.2K 1% 1/8W	
R352	1-260-016-11	CARBON MELF 47K 1% 1/8W	
R353	1-259-992-11	CARBON MELF 560 1% 1/8W	
R354	1-259-995-11	CARBON MELF 1K 1% 1/8W	
R355	1-216-182-00	CARBON MELF 220 1% 1/8W	
R356	1-259-995-11	CARBON MELF 1K 1% 1/8W	
R357	1-259-995-11	CARBON MELF 1K 1% 1/8W	
R358	1-259-992-11	CARBON MELF 560 1% 1/8W	
R359	1-259-995-11	CARBON MELF 1K 1% 1/8W	
R360	1-216-182-00	CARBON MELF 220 1% 1/8W	
R361	1-259-995-11	CARBON MELF 1K 1% 1/8W	
R362	1-259-995-11	CARBON MELF 1K 1% 1/8W	
R363	1-259-992-11	CARBON MELF 560 1% 1/8W	
R364	1-259-995-11	CARBON MELF 1K 1% 1/8W	
R365	1-216-182-00	CARBON MELF 220 1% 1/8W	
R366	1-259-995-11	CARBON MELF 1K 1% 1/8W	
R367	1-259-995-11	CARBON MELF 1K 1% 1/8W	
R368	1-259-992-11	CARBON MELF 560 1% 1/8W	
R369	1-259-995-11	CARBON MELF 1K 1% 1/8W	
R370	1-216-182-00	CARBON MELF 220 1% 1/8W	
R371	1-259-995-11	CARBON MELF 1K 1% 1/8W	
R372	1-259-995-11	CARBON MELF 1K 1% 1/8W	
R373	1-259-995-11	CARBON MELF 1K 1% 1/8W	
R374	1-259-995-11	CARBON MELF 1K 1% 1/8W	
R375	1-259-995-11	CARBON MELF 1K 1% 1/8W	
R376	1-259-995-11	CARBON MELF 1K 1% 1/8W	
R377	1-216-182-00	CARBON MELF 220 1% 1/8W	
R389	1-259-999-11	CARBON MELF 2.2K 1% 1/8W	
R501	1-260-004-11	CARBON MELF 4.7K 1% 1/8W	
R502	1-259-985-11	CARBON MELF 150 1% 1/8W	
R503	1-259-985-11	CARBON MELF 150 1% 1/8W	

Ref. No.	Part No.	Description	Remarks
R504	1-259-999-11	CARBON MELF 2.2K 1% 1/8W	
R505	1-260-012-11	CARBON MELF 22K 1% 1/8W	
R506	1-259-997-11	CARBON MELF 1.5K 1% 1/8W	
R507	1-259-985-11	CARBON MELF 150 1% 1/8W	
R508	1-259-985-11	CARBON MELF 150 1% 1/8W	
R509	1-259-985-11	CARBON MELF 150 1% 1/8W	
R510	1-259-985-11	CARBON MELF 150 1% 1/8W	
R511	1-260-004-11	CARBON MELF 4.7K 1% 1/8W	
R512	1-259-997-11	CARBON MELF 1.5K 1% 1/8W	

< RELAY >

Ref. No.	Part No.	Description	Remarks
RY301	1-515-683-11	RELAY	
RY302	1-515-683-11	RELAY	
RY303	1-515-683-11	RELAY	
RY304	1-515-683-11	RELAY	

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* A-3273-465-A MOUNTED PCB (B), DIGITAL
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< CAPACITOR >

Ref. No.	Part No.	Description	Remarks
C301	1-136-165-00	FILM 0.1uF 5% 50V	
C302	1-163-059-00	CERAMIC CHIP 0.01uF 10% 50V	
C303	1-136-165-00	FILM 0.1uF 5% 50V	
C304	1-136-165-00	FILM 0.1uF 5% 50V	
C305	1-163-059-00	CERAMIC CHIP 0.01uF 10% 50V	
C306	1-136-165-00	FILM 0.1uF 5% 50V	
C307	1-163-059-00	CERAMIC CHIP 0.01uF 10% 50V	
C308	1-163-165-00	CERAMIC CHIP 22PF 5% 50V	
C309	1-163-165-00	CERAMIC CHIP 22PF 5% 50V	
C310	1-163-077-00	CERAMIC CHIP 0.1uF 10% 25V	
C311	1-162-625-11	CERAMIC CHIP 0.0047uF 5% 50V	
C312	1-136-165-00	FILM 0.1uF 5% 50V	
C313	1-163-077-00	CERAMIC CHIP 0.1uF 10% 25V	
C314	1-136-165-00	FILM 0.1uF 5% 50V	
C315	1-163-059-00	CERAMIC CHIP 0.01uF 10% 50V	
C316	1-163-169-00	CERAMIC CHIP 33PF 5% 50V	
C317	1-163-059-00	CERAMIC CHIP 0.01uF 10% 50V	
C318	1-163-169-00	CERAMIC CHIP 33PF 5% 50V	
C319	1-136-165-00	FILM 0.1uF 5% 50V	
C320	1-163-059-00	CERAMIC CHIP 0.01uF 10% 50V	
C321	1-136-165-00	FILM 0.1uF 5% 50V	
C322	1-163-059-00	CERAMIC CHIP 0.01uF 10% 50V	
C323	1-163-059-00	CERAMIC CHIP 0.01uF 10% 50V	
C324	1-136-165-00	FILM 0.1uF 5% 50V	
C325	1-136-165-00	FILM 0.1uF 5% 50V	
C326	1-136-165-00	FILM 0.1uF 5% 50V	
C327	1-136-165-00	FILM 0.1uF 5% 50V	
C328	1-136-165-00	FILM 0.1uF 5% 50V	
C329	1-136-165-00	FILM 0.1uF 5% 50V	
C330	1-136-165-00	FILM 0.1uF 5% 50V	
C331	1-136-165-00	FILM 0.1uF 5% 50V	
C332	1-136-165-00	FILM 0.1uF 5% 50V	
C333	1-136-165-00	FILM 0.1uF 5% 50V	
C334	1-136-165-00	FILM 0.1uF 5% 50V	
C335	1-136-165-00	FILM 0.1uF 5% 50V	
C336	1-136-165-00	FILM 0.1uF 5% 50V	
C337	1-163-059-00	CERAMIC CHIP 0.01uF 10% 50V	
C338	1-136-165-00	FILM 0.1uF 5% 50V	
C339	1-163-059-00	CERAMIC CHIP 0.01uF 10% 50V	
C340	1-136-165-00	FILM 0.1uF 5% 50V	
C341	1-163-059-00	CERAMIC CHIP 0.01uF 10% 50V	
C342	1-136-165-00	FILM 0.1uF 5% 50V	
C343	1-163-059-00	CERAMIC CHIP 0.01uF 10% 50V	
C344	1-136-165-00	FILM 0.1uF 5% 50V	
C345	1-136-165-00	FILM 0.1uF 5% 50V	
C346	1-136-165-00	FILM 0.1uF 5% 50V	
C347	1-136-165-00	FILM 0.1uF 5% 50V	
C348	1-163-059-00	CERAMIC CHIP 0.01uF 10% 50V	
C349	1-163-059-00	CERAMIC CHIP 0.01uF 10% 50V	
C350	1-163-059-00	CERAMIC CHIP 0.01uF 10% 50V	
C351	1-163-059-00	CERAMIC CHIP 0.01uF 10% 50V	
C352	1-163-059-00	CERAMIC CHIP 0.01uF 10% 50V	
C353	1-163-059-00	CERAMIC CHIP 0.01uF 10% 50V	
C354	1-163-059-00	CERAMIC CHIP 0.01uF 10% 50V	
C355	1-163-059-00	CERAMIC CHIP 0.01uF 10% 50V	
C356	1-163-059-00	CERAMIC CHIP 0.01uF 10% 50V	
C357	1-163-059-00	CERAMIC CHIP 0.01uF 10% 50V	
C358	1-163-059-00	CERAMIC CHIP 0.01uF 10% 50V	
C359	1-163-059-00	CERAMIC CHIP 0.01uF 10% 50V	
C360	1-163-059-00	CERAMIC CHIP 0.01uF 10% 50V	
C361	1-163-059-00	CERAMIC CHIP 0.01uF 10% 50V	
C362	1-163-059-00	CERAMIC CHIP 0.01uF 10% 50V	
C363	1-163-059-00	CERAMIC CHIP 0.01uF 10% 50V	
C364	1-163-059-00	CERAMIC CHIP 0.01uF 10% 50V	
C365	1-163-059-00	CERAMIC CHIP 0.01uF 10% 50V	

DIGITAL

Ref. No.	Part No.	Description	Remarks
C401	1-125-486-11	DUBLE LAYERS 0.22F 5.5V	
C402	1-126-013-11	ELECT 1000uF 20% 16V	
C403	1-163-059-00	CERAMIC CHIP 0.01uF 10% 50V	
C404	1-124-915-11	ELECT 10uF 20% 63V	
C405	1-163-059-00	CERAMIC CHIP 0.01uF 10% 50V	
C406	1-136-165-00	FILM 0.1uF 5% 50V	
C407	1-163-059-00	CERAMIC CHIP 0.01uF 10% 50V	
C408	1-163-077-00	CERAMIC CHIP 0.1uF 10% 25V	
C409	1-163-077-00	CERAMIC CHIP 0.1uF 10% 25V	
C410	1-126-015-11	ELECT 3300uF 20% 16V	
C411	1-163-213-00	CERAMIC CHIP 0.0022uF 5% 50V	
C414	1-163-213-00	CERAMIC CHIP 0.0022uF 5% 50V	
C415	1-163-059-00	CERAMIC CHIP 0.01uF 10% 50V	
C416	1-163-077-00	CERAMIC CHIP 0.1uF 10% 25V	
C417	1-163-059-00	CERAMIC CHIP 0.01uF 10% 50V	
C418	1-163-059-00	CERAMIC CHIP 0.01uF 10% 50V	
C420	1-124-915-11	ELECT 10uF 20% 16V	

< CONNECTOR >

Ref. No.	Part No.	Description	Remarks
CNJ401	1-580-907-11	PLUG, CONNECTOR (UNI LINK XES-P1)	
CNJ402	1-580-907-11	PLUG, CONNECTOR (UNI LINK DISPLAY)	
CNJ403 *	1-564-507-11	PLUG, CONNECTOR 4P	

< DIODE >

Ref. No.	Part No.	Description	Remarks
D301	8-719-400-18	DIODE MA152WK	
D302	8-719-400-18	DIODE MA152WK	
D303	8-719-400-18	DIODE MA152WK	
D401	8-719-104-34	DIODE 1S2836	
D402	8-719-104-34	DIODE 1S2836	
D403	8-719-104-34	DIODE 1S2836	
D404	8-719-972-03	DIODE RLZ-J6.2B	
D405	8-719-400-18	DIODE 1S2837-T1	
D406	8-719-104-34	DIODE 1S2836	
D407	8-719-400-18	DIODE MA152WK	
D408	8-719-972-04	DIODE RLZ-J6.2B-TE11	
D409	8-719-972-04	DIODE RLZ-J6.2B-TE11	

< IC >

Ref. No.	Part No.	Description	Remarks
IC301	8-759-513-20	IC TMC57001PH	
IC302	8-759-513-20	IC TMC57001PH	
IC303	8-759-513-20	IC TMC57001PH	
IC304	8-759-513-20	IC TMC57001PH	
IC305	8-759-513-20	IC TMC57001PH	
IC306	8-759-513-21	IC TMS57002PH	
IC307	8-759-513-21	IC TMS57002PH	
IC308	8-759-513-21	IC TMS57002PH	
IC309	8-749-921-11	IC GP1F32R (INPUT DIGITAL)	
IC310	8-759-925-74	IC SN74HC04NS	
IC311	8-759-925-98	IC SN74HC107NS	
IC312	8-759-973-98	IC YM3623B	
IC313	8-759-032-01	IC MC74HC00AF	
IC314	8-759-233-64	IC MC74HCU04AF	
IC315	8-759-916-25	IC SN74HC32N	
IC316	8-759-506-48	IC MSM514256AP-80RS-B	
IC317	8-759-233-46	IC TC74HC597AF	
IC318	8-759-233-46	IC TC74HC597AF	
IC319	8-759-233-44	IC TC74HC595AF	
IC320	8-759-233-44	IC TC74HC595AF	
IC321	8-759-512-76	IC SM5833AF	
IC322	8-759-512-76	IC SM5833AF	
IC323	8-759-233-44	IC TC74HC595AF	
IC324	8-759-233-44	IC TC74HC595AF	
IC325	8-759-233-44	IC TC74HC595AF	
IC326	8-759-233-44	IC TC74HC595AF	
IC327	8-759-506-48	IC MSM514256AP-80RS-B	
IC328	8-759-506-48	IC MSM514256AP-80RS-B	
IC401	8-759-637-06	IC M37450M8-393FP	
IC402	8-759-518-17	IC MSM531001A-80RS	
IC403	8-759-553-08	IC X24C04PI	
IC404	8-759-920-28	IC S-8054HN	
IC405	8-759-981-65	IC LM2903M	

< JUMPER RESISTOR >

Ref. No.	Part No.	Description	Remarks
JR301	1-216-296-00	METAL CHIP 0 5% 1/8W	
JR302	1-216-296-00	METAL CHIP 0 5% 1/8W	

< COIL >

Ref. No.	Part No.	Description	Remarks
L301	1-543-610-11	BEAD, FERRITE	
L302	1-543-610-11	BEAD, FERRITE	
L303	1-543-610-11	BEAD, FERRITE	
L304	1-410-200-31	INDUCTOR CHIP 4.7uH	
L305	1-543-610-11	BEAD, FERRITE	
L306	1-543-610-11	BEAD, FERRITE	
L307	1-543-610-11	BEAD, FERRITE	
L308	1-543-610-11	BEAD, FERRITE	
L309	1-543-610-11	BEAD, FERRITE	
L310	1-543-610-11	BEAD, FERRITE	

Ref. No.	Part No.	Description	Remarks
L311	1-543-610-11	BEAD, FERRITE	
L312	1-543-610-11	BEAD, FERRITE	
L313	1-543-610-11	BEAD, FERRITE	
L314	1-543-610-11	BEAD, FERRITE	
L315	1-543-610-11	BEAD, FERRITE	
L501	1-410-397-21	FERRITE BEAD INDUCTOR	
L502	1-410-397-21	FERRITE BEAD INDUCTOR	
L503	1-410-397-21	FERRITE BEAD INDUCTOR	
		< TRANSISTOR >	
Q401	8-729-901-05	TRANSISTOR DTA124EK	
Q404	8-729-230-49	TRANSISTOR 2SC2712-YG	
Q405	8-729-230-49	TRANSISTOR 2SC2712-YG	
Q406	8-729-230-49	TRANSISTOR 2SC2712-YG	
Q407	8-729-216-22	TRANSISTOR 2SA1162-YG	
Q408	8-729-230-49	TRANSISTOR 2SC2712-YG	
Q409	8-729-230-49	TRANSISTOR 2SC2712-YG	
		< RESISTOR >	
R301	1-259-983-11	CARBON MELF 100 1% 1/8W	
R302	1-260-016-11	CARBON MELF 47K 1% 1/8W	
R303	1-260-016-11	CARBON MELF 47K 1% 1/8W	
R304	1-216-182-00	CARBON MELF 220 1% 1/8W	
R305	1-260-016-11	CARBON MELF 47K 1% 1/8W	
R306	1-260-032-11	CARBON MELF 1M 1% 1/8W	
R307	1-259-985-11	CARBON MELF 150 1% 1/8W	
R308	1-260-008-11	CARBON MELF 10K 1% 1/8W	
R309	1-259-995-11	CARBON MELF 1K 1% 1/8W	
R310	1-260-020-11	CARBON MELF 100K 1% 1/8W	
R311	1-216-254-00	CARBON MELF 220K 1% 1/8W	
R312	1-259-995-11	CARBON MELF 1K 1% 1/8W	
R313	1-260-016-11	CARBON MELF 47K 1% 1/8W	
R314	1-259-995-11	CARBON MELF 1K 1% 1/8W	
R315	1-260-016-11	CARBON MELF 47K 1% 1/8W	
R316	1-260-016-11	CARBON MELF 47K 1% 1/8W	
R317	1-260-016-11	CARBON MELF 47K 1% 1/8W	
R318	1-260-016-11	CARBON MELF 47K 1% 1/8W	
R319	1-259-995-11	CARBON MELF 1K 1% 1/8W	
R320	1-260-016-11	CARBON MELF 47K 1% 1/8W	
R321	1-260-016-11	CARBON MELF 47K 1% 1/8W	
R322	1-259-995-11	CARBON MELF 1K 1% 1/8W	
R323	1-260-016-11	CARBON MELF 47K 1% 1/8W	
R324	1-260-016-11	CARBON MELF 47K 1% 1/8W	
R325	1-260-016-11	CARBON MELF 47K 1% 1/8W	
R326	1-260-016-11	CARBON MELF 47K 1% 1/8W	
R327	1-260-016-11	CARBON MELF 47K 1% 1/8W	
R328	1-260-016-11	CARBON MELF 47K 1% 1/8W	
R329	1-260-016-11	CARBON MELF 47K 1% 1/8W	
R330	1-260-016-11	CARBON MELF 47K 1% 1/8W	
R331	1-260-016-11	CARBON MELF 47K 1% 1/8W	
R332	1-260-016-11	CARBON MELF 47K 1% 1/8W	
R333	1-260-016-11	CARBON MELF 47K 1% 1/8W	
R334	1-260-016-11	CARBON MELF 47K 1% 1/8W	
R335	1-260-016-11	CARBON MELF 47K 1% 1/8W	
R336	1-260-016-11	CARBON MELF 47K 1% 1/8W	
R337	1-259-995-11	CARBON MELF 1K 1% 1/8W	
R338	1-260-016-11	CARBON MELF 47K 1% 1/8W	
R339	1-260-016-11	CARBON MELF 47K 1% 1/8W	
R340	1-259-995-11	CARBON MELF 1K 1% 1/8W	
R341	1-260-016-11	CARBON MELF 47K 1% 1/8W	
R342	1-260-016-11	CARBON MELF 47K 1% 1/8W	
R343	1-259-995-11	CARBON MELF 1K 1% 1/8W	
R344	1-260-016-11	CARBON MELF 47K 1% 1/8W	
R345	1-260-016-11	CARBON MELF 47K 1% 1/8W	
R346	1-259-995-11	CARBON MELF 1K 1% 1/8W	
R347	1-260-016-11	CARBON MELF 47K 1% 1/8W	
R348	1-260-032-11	CARBON MELF 1M 1% 1/8W	
R378	1-259-983-11	CARBON MELF 100 1% 1/8W	
R379	1-259-983-11	CARBON MELF 100 1% 1/8W	
R380	1-259-980-11	CARBON MELF 56 1% 1/8W	
R381	1-260-016-11	CARBON MELF 47K 1% 1/8W	
R382	1-259-983-11	CARBON MELF 100 1% 1/8W	
R383	1-259-983-11	CARBON MELF 100 1% 1/8W	
R384	1-259-983-11	CARBON MELF 100 1% 1/8W	
R385	1-259-983-11	CARBON MELF 100 1% 1/8W	
R386	1-259-983-11	CARBON MELF 100 1% 1/8W	
R387	1-259-983-11	CARBON MELF 100 1% 1/8W	
R401	1-260-016-11	CARBON MELF 47K 1% 1/8W	
R402	1-260-016-11	CARBON MELF 47K 1% 1/8W	
R403	1-216-254-00	CARBON MELF 220K 1% 1/8W	
R404	1-260-012-11	CARBON MELF 22K 1% 1/8W	
R405	1-260-004-11	CARBON MELF 4.7K 1% 1/8W	
R406	1-260-003-11	CARBON MELF 3.9K 1% 1/8W	
R407	1-260-004-11	CARBON MELF 4.7K 1% 1/8W	
R408	1-260-016-11	CARBON MELF 47K 1% 1/8W	
R409	1-260-012-11	CARBON MELF 22K 1% 1/8W	
R410	1-260-008-11	CARBON MELF 10K 1% 1/8W	
R411	1-260-032-11	CARBON MELF 1M 1% 1/8W	
R412	1-260-016-11	CARBON MELF 47K 1% 1/8W	

DIGITAL

Ref. No.	Part No.	Description	Remarks
R413	1-260-016-11	CARBON MELF 47K 1% 1/8W	
R414	1-260-012-11	CARBON MELF 22K 1% 1/8W	
R415	1-260-016-11	CARBON MELF 47K 1% 1/8W	
R416	1-260-016-11	CARBON MELF 47K 1% 1/8W	
R417	1-259-983-11	CARBON MELF 100 1% 1/8W	
R418	1-260-016-11	CARBON MELF 47K 1% 1/8W	
R419	1-260-016-11	CARBON MELF 47K 1% 1/8W	
R420	1-216-254-00	CARBON MELF 220K 1% 1/8W	
R421	1-260-016-11	CARBON MELF 47K 1% 1/8W	
R423	1-260-016-11	CARBON MELF 47K 1% 1/8W	
R424	1-260-016-11	CARBON MELF 47K 1% 1/8W	

< SWITCH >

Ref. No.	Part No.	Description	Remarks
SW401	1-570-358-11	SWITCH, SLIDE (OUTPUT MODE 3WAY/4WAY)	

< CRYSTAL >

Ref. No.	Part No.	Description	Remarks
X301	1-577-269-11	VIBRATOR, CRYSTAL (18.432MHz)	
X302	1-577-305-11	VIBRATOR, CRYSTAL (25MHz)	
X401	1-577-377-11	VIBRATOR, CERAMIC (10MHz)	

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MISCELLANEOUS

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Ref. No.	Part No.	Description	Remarks
13	1-541-869-11	MOTOR (FAN)	
	1-543-738-41	CORE, RING	
	1-533-226-11	HOLDER, FUSE (BRADE TYPE)	
F401	1-532-731-11	FUSE (BRADE TYPE) (AUTO FUSE)(3A)	

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ACCESSORIES & PACKING MATERIALS

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Ref. No.	Part No.	Description	Remarks
	3-367-410-01	SCREW (DIA. 5X15), TAPPING	
F401	1-532-731-11	FUSE (BRADE TYPE) (AUTO FUSE)(3A)	
	1-590-519-31	CORD (WITH CONNECTOR)	
	1-543-827-11	CLAMP, SLEEVE FERRITE	
	1-690-204-21	CORD, CONNECTION	
	* 3-371-076-01	CUSHION	
	* 3-371-074-01	INDIVIDUAL CARTON	
	3-753-167-21	MANUAL, INSTRUCTION (ENGLISH/FRENCH) (E)	
	3-753-167-11	MANUAL, INSTRUCTION (ENGLISH/FRENCH /GERMAN/DUTCH/ITALIAN) (AEP, GERMANY)	

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HARDWARE LIST

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Ref. No.	Part No.	Description	Remarks
#1	7-682-246-09	SCREW (+K3XT) (FE-NI)	
#2	7-682-547-04	SCREW +B 3X6	
#3	7-685-104-19	SCREW +P 2X6 TYPE2 NON-SLIT	
#4	7-685-646-79	SCREW +BVTP 3X8 TYPE2 N-S	
#5	7-682-548-04	SCREW +BVTT 3X8 (S)	
#6	3-344-501-11	SCREW (+PTT 3X8), GROUND POINT	

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